

We are still stuck with the Castle Frankenstein view of science: lofty, detached, frightening, more akin to magic than to reason. Jon Turney reports from the annual Oxford science studies seminar which looks at new ways of promoting SCIENTIFIC UNDERSTANDING among the general public (page 10)



The politicization of "standards": the American radical press has attacked President Reagan's appointment of the conservative Democrat WILLIAM BENNETT as head of the US National Endowment for the Humanities. Peter David interviews the controversial new watchdog and paymaster of humanities research (page 12)

A tale of two cultures: Judy Attfield examines the great divide in DESIGN EDUCATION between traditional aesthetics and the "dirty overalls" images of science and engineering (page 13)

INTELLIGENCE TESTING remains one of the most emotive of educational issues. Maurice Chazan reviews a new work by Gillian Sutherland which traces the history of mental testing in English education from 1880 to the Second World War (page 16)

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Towards a common culture II

'Men are grown mechanical'...

If culture is a difficult word in English, ideology is still more difficult. It is also more popular which broadcasts the confusion. The word was first used by a fairly obscure French philosopher at the beginning of the nineteenth century with its literal meaning, the science of ideas. Later it acquired more powerful if less literal meanings: as a grand self-sufficient scheme, an organic order of ideas; as a package of ideas, ideals, beliefs and customs, the inevitable *Weltanschauung*; or as an interpretative code which we use to make sense of the world. In simpler words ideology as religion, ideology as culture, and ideology as perception.

This week my concern is with ideology in these first two forms as the building blocks of modern culture. The subject is the grand ideologies of the nineteenth and twentieth century which have shaped and reflected our understanding of that culture - nationalism, which intensified and systematized (and, some would say, perverted) the older tribal solidarities of family, community and estate; positivism, which in its primitive Comtean form tried to reduce the knowable to the scientific and in its later, logical positivist, form denied all metaphysical claims; liberalism/socialism, which in its Marxist form introduced a materialist conception of society that undermined the independence of individual intelligence and idealism and in its milder form established the "social question" as the most important issue for industrial society; the affective ideologies from romanticism to Freudianism, which began the exploration of the inner world of our fears and our feelings. Power and bureaucracy, rationality and secularism, materialism and equality, alienation and loneliness through these preoccupations the grand ideologies have come over the last century to map out the modern condition.

They have also paralleled the great movements that have shaped modern society. Nationalism has been the ideology that represented and justified the centralized, bureaucratic nation state. The original model was cast in revolutionary France and refined (and purged of any association with social racism) in monarchist Prussia which was also the home of Hegel, nationalism's most potent philosopher. In the nineteenth century the nation state established itself as the most dynamic model for large-scale social organization throughout western and southern Europe, in central and eastern Europe in the early twentieth century, and throughout the world after 1945.

This form of the state is not only national by also bureaucratic. Indeed the centralization (Bretons, Welsh and Catalans beware) and professionalization (placement displaced by civil servants) of political authority are the instruments that moulded new national identities out of the chaos of local and communal loyalties and which nation states used to assert themselves against their rivals. Radicals also came to depend on centralized bureaucratic power to produce social reforms.

Nationalism celebrated the growth of the nation state, positivism marked the industrial revolution and the progress of science. Its early emphasis was on organization not discovery. Its first message, which was carried over into our views of culture and society, was that existing knowledge could be organized more effectively to produce unparalleled progress rather than that the discovery of new knowledge would transform our world. Hence the obsession of Victorian and later intellectuals with machine metaphors of society. Comte's elaborate if naive classification of the early industrial revolution, which depended much less on radical ideology than on superior social organization.

Later positivism was coloured by the dynamism of science and by the inevitable clash between reason and faith which foregrounded the decline of

organized religion. As a result it became less a "social" ideology that expressed a scientific, mechanistic even, model for the reconstruction of society, and more a "philosophical" ideology, a secular religion, that celebrated the superiority of rationality. So positivism has moved away from its early and open association with social engineering, much of which has been disappointing and some disastrous, but has tightened its grip on our thoughts and our values. Max Weber's iron cage is where we have come to live our public lives.

After the national and industrial/scientific revolutions, the most significant movement in modern society has been the democratic revolution. This has been celebrated in a jumbo-ideology that embraces liberalism, radicalism and socialism. Whatever their differences they have this in common, that the organization of society and the regulation of culture according to custom and tradition should be swept away and a new society and culture established according to rational principles (whether economic efficiency, human rights, or social justice). As with positivism this view has so thoroughly invaded the modern consciousness that other views have entirely lost their intellectual credibility, although not their actual relevance. The language of modern politics is made up of accumulated vocabularies that stretch from eighteenth century philosophes and Whigs to twentieth century Marxists and anti-Marxists.

The fourth modern movement, the revolution of the senses, is mirrored in an even more diffuse ideology that ranged from romanticism to Freudianism. As the affective and irrational have been expelled from public thought along with custom and tradition these impulses have been concentrated in the world of private feeling, convention and art - culture in its conventional sense - have become in the nineteenth and twentieth centuries almost exclusively the product of that latter world, increasingly narcissistic, intense, and fearful. Compelled outward idealism of George Eliot with the inward atavism of D. H. Lawrence. The areas where private feeling and public thought meet such as the family and sexuality have become among the most contested and troubled in modern society. The interpretations offered by the leaders of this fourth revolution, from Coleridge and Byron to Freud and Lacan, have only added to this sense of disorder.

These then are the four revolutions that have shaped the modern world, the national, the industrial/scientific, the democratic, and the revolution of the senses. Their solidity and significance cannot be denied. They form the substructure of our ideas, our values, our lives. Their cumulative achievement has been to sweep away the pre-industrial world of custom and faith, which survived in Europe until the eighteenth and nineteenth centuries and in much of the rest of the world until the very recent past.

Yet the ideologies that celebrated these revolutions have never achieved the same solidity. Nationalism has been undermined by the excesses of chauvinism and war and also by the stubborn survival of other clusters of loyalty. Positivism has been undermined by a growing consciousness of the costs as well as the benefits of scientific progress and of the moral limitations of the rationalist tradition. Liberalism/socialism has been undermined by an increasing alienation from government according to abstract principles which in turn has revived the claims of customary conservatism and stimulated support for the idealistic individualism of the radical left. The affective ideologies have been put on the defensive by the growth of what has been called the new puritanism. Some would argue that the reason for the decay of these grand ideologies was the development of postwar pragmatism, that combination of international

ism, Keynesian economic management, political quietism, and social welfare which will be discussed next week. But that is probably to confuse cause and effect; the postwar pragmatism only became possible because of the decay of ideology. That view may also underestimate the extent to which pragmatism was itself simply a restatement of the same collections of ideas and values in more up-to-date and less categorical terms.

Why then did the grand ideologies decay? Three broad causes can be suggested. First, their superiority never went uncontested even in their European hey-day between 1789 and 1939. In *Signs of the Times* published in 1829 Thomas Carlyle objected to the materialism that developed from positivism and liberal thought in terms that were echoed later in the century by Ruskin and Arnold. He wrote:

Not the external and physical alone is now managed by machinery, but the internal and spiritual also... Men are grown mechanical in head and in heart as well as in hand... Not for internal perfection, but for external combinations and arrangements, for institutions, constitutions - for Mechanisms of one sort or another, do they hope and struggle. Their whole efforts, attachments, opinions turn on mechanisms, and are of a mechanical character.

From the very start there was resistance to the modern project not simply from those like kings, landowners, and priests who seemed most directly threatened by its constituent revolutions, but also from intellectuals like Carlyle and Arnold who feared the demoralizing crudity of its attendant ideologies. Older ideas and values retained as submerged vitality.

A second cause was that these ideologies, however benign their practical consequences in the nineteenth century, in the twentieth century seemed to condone and even produce practices and behaviours that far from being civilized were among the most barbaric witnessed in human history. Nationalism seemed to lead to the massacres of Hindus and Muslims in India on the brink of independence. Positivism seemed to lead to the Moloch-like social engineering of Stalin's Russia or to nuclear weapons and environmental despoliation. Liberalism seemed to lead to a mass society which undermined community despite its intelligence, destroyed high culture, and alienated the individual citizen. The affective ideologies seemed to lead not to liberation but to demoralization and anomie.

A third cause was the growing belief that not only were these grand ideologies, at any rate in their fully articulated forms, pernicious in their effects but maybe false in their intellectual descriptions which, of course, redoubled their danger. In the 1930s Keynes was able to assert with a guns-ho confidence:

The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed, the world is ruled by little else... I am sure that the power of vested interests is vastly exaggerated compared with the gradual encroachment of ideas.

Keynes' throwaway remark when they are right and when they are wrong - raised a moral issue that others took more seriously. After all the eighteenth century had looked with condescending horror on the religious wars of earlier centuries in shades of unprovable faith. Was there a danger that the ideologies of the modern world would demand the same loyalty, and require the same sacrifices as the religious wars of the world that had passed? Karl Popper turned away in the 1920s from his early enthusiasm for Marxism on these

grounds. He recalled in his autobiography:

I realized the dogmatic character of the creed, and its incredible intellectual arrogance. It was a terrible thing to arrogate to oneself a kind of knowledge that made it a duty to risk the lives of other people for an uncritically accepted dogma and for a dream which might turn out not to be realizable.

So the grand ideologies came under a cloud for very similar reasons to the religious faith which they had so successfully assaulted a century before. They were unprovable and therefore, unscientific however elaborate their intellectual claims. And they commanded uncritical loyalty and which seemed to have been confirmed by the dark experience of the twentieth century. In the spirit of this reaction against ideology Lord Trilling in *The Liberal Imagination* published in 1950 defined it in these four terms "the habit or the ritual of showing respect for certain formulas to which, for various reasons having to do with emotional safety, we have very strong ties of whose meaning and consequences in actuality we have no clear understanding."

I argued last week that the particular likes and dislikes, preoccupations and prejudices, of the British may have distanced us from two of the most prominent dangers inherent in modern culture, the imperialism of these grand ideologies and Weber's "iron cage" of rigid rationality. Our sense of "space" and our sense of "place" and aesthetic-moral preoccupations to the latter. In many ways this now seems a difficult argument to sustain: Britain has been so prominent in developing the key elements in modern culture.

Our sense of nationalism may be less intense, for reasons which were discussed last week. But our commitment to positivism, at any rate in its early nineteenth century stages, was notable for its thorough enthusiasm. Our contribution to the rationalist tradition of government was also formidable; J. S. Mill was influential throughout Europe a century ago. As for what I have called rather loosely the affective ideologies our culture offers some of its most effective examples, whether the high art of the nineteenth century novel or the low culture of twentieth century pop music. So in what real sense can one talk of Britain standing apart?

And yet a case can still be made, although not perhaps a conclusive one. Even a century ago when Britain seemed to be in the forefront of a formation of a modern society and a modern culture, it retained powerful remnants of older customs and values. The form of state which replaced the "Old Corruption" between 1830 and 1850 was never on a Napoleonic model. The influence of Gradgrind-style positivism has to be set against Martin Weiner's evidence of the decline of the entrepreneurial spirit in nineteenth century England. Romanticism was always, at the briefest of hiccups in the 1930s, an aesthetic rather than an intellectual movement.

But the real break has come with the twentieth century. The drifting apart that could already be observed in Edwardian-Elgarian England accelerated after the First World War by the arrival of the exiles (like Popper) from the collapse of the high culture of continental Europe in the 1920s and 1930s. Or perhaps another way to put it is to argue that the decay of grand ideology and the triumph of pragmatism, which occurred throughout Europe after 1945, arrived a little early in Britain.

Peter Scott

NEXT WEEK: the rise of postwar pragmatism.

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End of the line, warn librarians

by Paul Flather

University librarians already worried about serious staff shortages and shorter opening hours have now warned that shrinking budgets could affect the range of services and periodicals expected for first-class research.

A new survey prepared by the Standing Conference of National and University Libraries reveals that the proportion of university funds spent on libraries fell from 4.5 to 4.3 per cent between 1981/82 and 1982/83. These are the latest years for which information is available and it could be even lower now.

The SCUNUL has just started collecting data, but this confirms figures from the Committee of Vice Chancellors and Principals showing that in real terms the amount universities spend on books has fallen by £2.4m and on periodicals by £900,000 between 1979/80 and 1982/83.

Librarians are most worried by the high inflationary index attached to books and periodicals, given an extra twist by the falling value of the pound. The CVCP's cost index shows books jumped 54 per cent in the past four years compared to building repairs 28 per cent, laboratory maintenance 26 per cent and salaries 14 per cent. The overall rise is 20.7 per cent.

The plight of libraries is certain to feature in the University Grants Committee strategy document

expected next month. One proposal being canvassed would be the creation of a new UGC standing committee on research to monitor research funding, equipment grants and libraries.

This could take over from the steering group set up after the 1976 Atkinson report on capital provision for libraries. This has not met for more than a year since Dr Anne Whitman, fellow of Lady Margaret Hall, Oxford retired as chairman. The UGC will review the group's standing shortly.

Mr Anthony Loveday, secretary of SCUNUL, warned some kind of extra funding - perhaps through a special technology fund - was essential. "We have reached the stage where serious damage to the long-term well-being of libraries is imminent. There is no more fat left," he said.

Another recent SCUNUL survey showed that 88 per cent of libraries had cut back on monographs, 81 per cent on serial periodicals, 62 per cent on binding, 58 per cent on items over £60 each, 52 per cent on opening hours. Some 83 per cent had reduced clerical staffing in recent years, 76 per cent had reduced academic staffing and 55 per cent cut other posts.

The SCUNUL is also concerned by the record number of head librarianships in universities which have fallen vacant in the past three years, usually as a result of retirement incentives. In several cases the post has been filled by the deputy and the deputy's post frozen.

IT institute proposals 'too hasty'

The electronics industry greeted the news of proposals for a new, private University Institute of Information Technology with some surprise this week.

The main companies concerned with skill shortages stressed that the proposal came to them from the Department of Trade and Industry. And they were startled by the DTI suggestion that the first appointments for the new institute should be made by this October. One senior industry executive, involved with the recent Butcher committee to examine skill supply, said: "The Government appears consumed with haste."

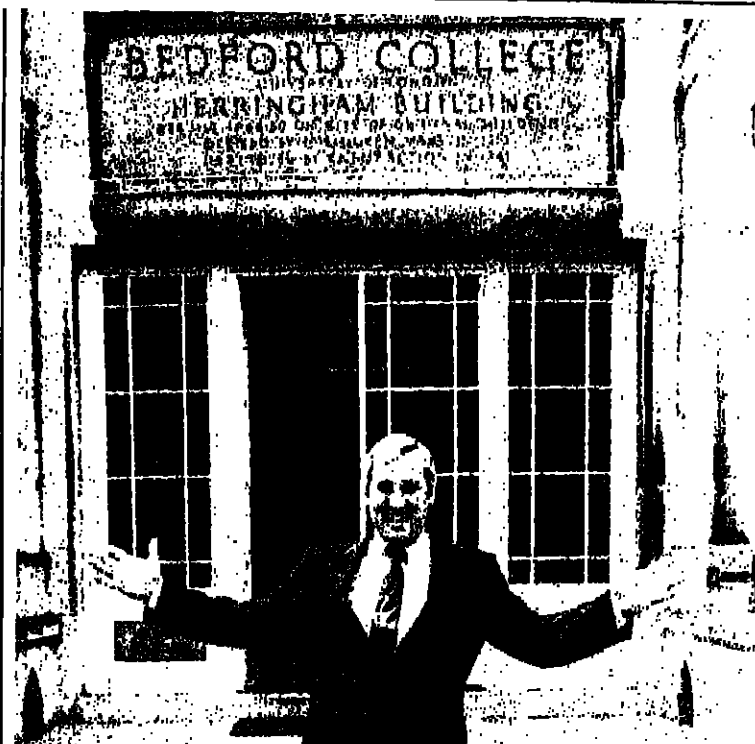
The plans, which appear to be a personal initiative of Mr Kenneth Baker, minister for information technology, sketch a new university, founded by industry, which could turn out 1,000 graduates a year by the end of the decade. It would begin by offering short courses and conversion courses to boost the short-term supply of technologists.

The proposal has generated considerable ill-feeling between the DTI and the Department of Education and Science, which was not consulted before the details were sent to companies. The DES sympathizes with the view of the Committee of Vice Chancellors and Principals and the Association of University Teachers, that extending universities can meet the demand for information technology skills if they are given the money by Government or industry.

Mr Barry Sheerman, Labour party spokesman on education and training, said he was appalled at the proposal which used the inability of universities to respond to new demands for skills as a justification for private sector initiatives.

There was little sign of enthusiasm from leading firms for a new institute with no direct Government funding. They are keen on collaborative schemes, like one announced this week in which Plessey will sponsor a new course at the University of Manchester Institute of Science and Technology in microelectronic systems engineering.

Technology that Cranfield Institute of Technology had been approached to develop, by Sir Henry Chilver, vice-chancellor of Cranfield and chairman of the Milron-Kaynes Development Corporation - has now tipped as a site for the new institute.



Dr Norman Stewart, president of Rockford College, Illinois, shows off his latest acquisition, Bedford College, London. Full story, page 5.

Strathclyde wins fight to keep college in its own hands

by Olga Wojtas
Scottish Correspondent

The Government has backed down over its proposal to take control of Bell College of Technology, currently run by Strathclyde Regional Council.

The decision follows a year of tactical skirmishing between the Scottish Education Department and Strathclyde over the transfer of two regional colleges.

Last July, the Secretary of State for Scotland, Mr George Younger, announced that he intended transferring Bell and Glasgow colleges of technology in Strathclyde and Napier College in Lothian to central control, because of their high proportion of advanced work. He also proposed transferring Leith Nautical College, currently a central institution, to Lothian region.

Strathclyde, which recognized that it would probably lose Glasgow College of Technology, but was anxious to retain Bell, formally opposed the transfer of either college. This has now allowed it to concede Glasgow in return for Bell.

The region had argued that it was important to keep Bell as a further education college for the Hamilton area, and that it provided consultancy and in-service courses for other local colleges.

But Bell has been keen for transfer to Scottish Office control, since it fears that if the other colleges become central institutions, leaving it as the only advanced college under regional control, there could be a gradual takeover of its advanced courses.

Although the Government has now reached agreement with Strathclyde, it is still in dispute with Lothian over Napier and Leith colleges.

Napier's running costs are £11m, but the region will lose only £7m through loss of the rate support grant and inter-authority payments for students who came from other regions.

But Lothian still claims that it deserves compensation for Napier whose buildings and equipment are understood to be worth more than £10m. The region has been growing increasingly reluctant to take over Leith Nautical College and may use the financial issue as a bargaining lever.

UGC calls for extra cash for Ulster

by Karen Gold

Northern Ireland's new university needs an extra £11.1m spent on buildings and equipment to bring it up to the standard of other universities in the United Kingdom.

That is the recommendation of a University Grants Committee working party only weeks before the University of Ulster, an amalgamation of the Ulster Polytechnic and New University of Ulster, is due to receive its royal charter.

The permanent UGC working party for Northern Ireland, reporting on its first year's investigations, says that both the NUU and Queen's University are better off for funding and student/staff ratios than their mainland counterparts.

But the polytechnic is slightly worse off and will need an extra £4.8m - in addition to the £1.35m for the whole new university in 1984/85 for furniture and equipment - to bring the new institution to a well-found state.

The second area where the UGC wants increased funding is in Londonderry, where the working party recommends an even larger increase in student numbers than the fourfold increase already planned.

Magee University College, which will be Ulster University's site in Londonderry, has been earmarked an increase from around 170 full-time equivalent students to 800 by the new continued on page three

Alvey-style plan for materials

by Jon Turney
Science Correspondent

The Government is considering backing a large collaborative research programme for engineering materials, following the recommendations of an advisory group set up last year.

The Department of Trade and Industry has been asked to pay half the cost of a four or five-year scheme worth £120m, financed in a similar way to the larger Alvey computer research programme.

The materials advisory group was set up last August to look at the need for a collaborative effort to develop new materials and speed up introduction if improved materials in industry. The group, chaired by Mr John Collyear, chairman of Associated Engineering, has now reported to the DTI.

The report calls for a new research club, bringing together industry, government departments, the Science and Engineering Research Council and the universities. This would be similar to Alvey or the DTI-sponsored Joint Opto-Electronics Research Scheme (JOERS).

The report notes that SERC backing for materials research has been restricted recently, as revealed by the council's own recent study of unfunded "nipples" grants. It points to big programmes of research into new materials in other countries, including Japan.

The British scheme proposed would cover new materials like composites and ceramics as well as improvements to more traditional materials. The report says work should be organized around a few engineering demonstration projects which would act as a focus for new materials technology and speed up its application.

Members of the group which produced the report hope for a positive response from ministers this autumn. Mr Kenneth Baker, minister for information technology, has twice hinted that the Alvey and JOERS model could be extended to other areas. Speaking at the materials engineering conference at Leeds University last month, and again at an Alvey press conference last week, he said the volume of research needed in key areas of technology over the next 10 years could only be supported by collaborative programmes.

The official DTI position is that the report is being considered and may be published later in the year. If a collaborative programme receives DTI backing, possible with support from the Ministry of Defence, it will probably produce a further shift in research policy-making away from the research councils toward the industry department.



Laurence Kitchin on Shakespeare's debt to Machiavelli, 13



Advice to body falls on deaf ears

The two days before the Parliamentary recess produced a flurry of announcements including several of concern to those in education. Among them was one dealing with the reconstitution of the National Advisory Body whose initial three-year term will come to an end next January.

In one way the announcement caused no surprise since Sir Keith has already indicated clearly that he intended the NAB to continue. Nonetheless there was some speculation as to whether he would take the opportunity to amend its constitution or terms of reference and it is interesting to see that few amendments have been made in either direction. Two additional representatives of industry and the professions will further increase the size of the board, and almost inevitably therefore strengthen the working groups which are established to review particular areas of provision.

Perhaps it is inevitable, for this trend has already emerged over the three-year period. But it is to be regretted in that one of the chief strengths of the NAB, namely the openness of its debates, is likely to be further eroded if key decisions are effectively determined in working groups whose papers and discussions are not open to scrutiny until they surface at the board.

The National Association of Teachers in Further and Higher Education had pressed strongly for an important amendment to the terms of reference of the NAB which seems to have fallen on deaf ears. We have been increasingly concerned that the NAB is not formally constituted to advise the Secretary of State on the level of resources which it feels necessary to maintain the system at reasonable levels of provision. Instead the terms of reference charge it with giving advice to the Secretary of State within the resources determined for the sector.

The boundary line between these two formulations does of course represent something of a tightrope and the committee has on occasions gone publicly to Sir Keith to ask for additional resources for the sector. It would have represented a major breakthrough had the NAB been clearly charged with this responsibility.

As an association we have had many disagreements with the NAB during its first three years of development. Some of these have been sharp and public and we have campaigned openly for opposition to particular policies.

This autumn and spring will see the blueprint being established for higher education to the end of the century. Both the NAB and the University Graduate Committee are in the process of drawing together their final advice on long-term strategy. The UGC has already issued its statement on continuing education and a NAB report on this area of provision is now before the NAB committee for its approval. The Government's opening shots have been to revise the demand projections for higher education to the year 2,000.

It will be the greatest test of the NAB to see whether it can, in the inevitably cut-throat competition for resources, preserve and extend the public sector interests. Not for one will be fighting inside and outside the board to ensure that this happens.

Jean Bocoock

The author is assistant secretary for higher education at the National Association of Teachers in Further and Higher Education.

Letters to the editor

Commenting on the OU events

Sir, - Your leader "Closing down the OU" (July 27) is the best I have read concerning the Open University and the wider considerations connected with it and higher education. You are to be congratulated on such an objective and meaningful analysis. However, could I be permitted to put a slight gloss on it, and make a comment based on, I suspect, a unique experience and coincidence?

First, until the end of April, I was the first northern regional director of the OU since May 1969. I took early - very early - retirement then, in part because of the critical financial pressures on the university. It made life in senior management difficult to say the least, but I thought, too, that my voluntary departure might save the OU a few coppers and save me a few further professional headaches. The problems have created an unhelpful atmosphere in Milton Keynes and in the university's regions, causing untold damage in terms of morale for students and staff of all categories.

But you are right in stressing that there is something very wrong between the OU and the Department of Education and Science. You have made that point before. It is my belief that a lot of this fault lies in the university, for the manner and style of its dealings with the DES is not well received in either Westminster or Whitehall. That regrettable fact is, I believe, now recognized by most of my former colleagues and they seek to redress this shortly.

One can but hope that when effective communications can be reopened (as they were when Margaret Thatcher was Secretary of State at the DES - to quote one seemingly overlooked example) ministers, aides and civil servants will be able to agree the figures in dispute, and much, much more. The

day, for whatever reason, the OU closes its doors will be a Dunkirk, and for the education system, there may well be no D Day.

Secondly, and perhaps equally of note is that as a registered unemployed person (I need more "stamps"), I have been invited to several Manpower Services Commission events through the Professional and Executive Register. Up to now I have attended two ill-structured events to see if I am suited for management, or not; to discover how to fill in a curriculum vitae and use a polytechnic library. Furthermore I have in this package needed to listen to quasi-psychology and now have the opportunity to be advised and counselled for another 13 weeks.

No one knew who I was, what I did, or why I came. It seemed no one cared. Nor did I know who the other four - yes, four - participants were. They did not take long to find out, with five students and two tutors, nor that we had nothing in common - except not being in full-time employment - but that did not change what was supposed to be, and called an "open learning" programme.

I can be paid to travel at 95p a mile for a round trip of 84 miles on 16 occasions; the course is free. No wonder I feel sad and angry. The MSC pay this to me, but much more to the teaching institutions who take up and device these ventures. With my luck more staff will be appointed to these agencies and their heads of department could be in for regrading. All this, Open Tech and more while the OU suffers. Priorities?

You are right; beware the MSC steamroller. That it is heavy there can be no doubt. Whether it is needed to dabble in education is another matter. I suppose it's a question of who is

batting and who is bowling. Perhaps rain should stop play.

Yours, etc.,
A. PETER MILLER,
Hewitt Stones,
Hexthor, Hexham.

Sir, - I refer to the letter (THESE, July 27) from Professor Harris and other OU academics appealing for open discussion. As the professor chiefly responsible for the economics block of D102 he may be able openly to help concerning some problems it raises.

Could he perhaps explain why it is necessary, for demonstration and textual discussion purposes, to use a diagram (repeated five times) that exaggerated profits in the furniture manufacturing industry by more than 20 times, while claiming it was a deliberate abstraction from reality?

The course team recently wrote me that it was done for reasons of "graphic expedience". This astonished me. To confirm it I asked for clarification. It is hardly surprising that they changed their ground. However, the replacement explanation, equally surprising, was as follows: "The illustrator responsible for this diagram is also a cartoonist, who was used because we wanted a light touch for a subject - economics - often perceived as dreary. Your objections to this facetious exaggeration, however, have taught us a valuable lesson, and we shall try in future to be more sensitive to unintended implications."

Either of these two most recent answers leave me problems with which no doubt the professor can help openly. With all the tributes made to serious mature, experienced, dedicated students, why is it thought necessary to distort reality to lighten their load by treating them as juveniles?

No guide is given in the course materials what manufacturing profits are in reality. Specialized knowledge is therefore required to recognize the distortion. The question of factitiousness therefore does not arise. No one in my tutorial class, not even the tutor, knew there was a distortion till it was pointed out. Not even the tutor suggested it was a joke. Why did the professor think that students would see this as funny? Was it a good enough reason for exaggeration anyway?

A repeat of the diagram is used as the basis for discussion of what would be a fair division of the value added in manufacture, between wages and the "capitalist class". The diagram shows profits taken by capitalists to be three times that given to labour. The truth is very much the opposite. In reality, labour takes seven times more than capital. Very, very few students could possibly know this. How, then, can they orientate themselves to and make an informed judgment of reality? How can they compare the validity of different perspectives of reality when the "model" they are given to examine upon is acknowledged as a fiction joke?

Does the professor now propose to treat the matter openly and make sure that all tutors and students are aware that the diagram is a joke? If not, can only sympathize with the professional economists who wrote of the television programme associated with this unit: "Many observers may conclude that this is not an honest caricature, but a deliberate travesty" (THESE, July 7).

Yours faithfully,
RAYNER SHARP,
The Old Mill,
Sutton Valence,
Midstone.

Decision making

Sir, - Ernest Boyer (THESE, August 3) reports the important view that "the decision-making arrangements on campus should be as varied as the agenda itself". Only the usual two black-and-white alternatives were suggested - formal negotiations or informal conversations.

But new decision-making systems enable negotiations to be handled in more systematic and versatile ways: the computer, via programs like the Priority Decision System of the Science Associates. Now that such systems are increasingly used in American and British business negotiations of all kinds, it is at last possible to achieve the varied decision-making arrangements which have been advocated on campus in the United States.

However, for this to happen new requires that genuinely decent, friendly programs be taken out of the technological siding to which British universities have consigned them for use in the main-line management process of education.

JIMMY ALGIE,
Director,
Management decision programme,
Brunel University.

Industry bias

Sir, - I refer to your report (THESE, August 3) that the Scottish Further Education Advisory Council has been accused of bias, in that it is biased towards industry in the composition of its membership. That this is so is not remarkable, when it is considered that the under-secretary of state at the Scottish Office responsible for the public sector colleges has on the portfolio education and industry (the education and industry portfolio institutions are regarded as fulfilling the function for preparing students for specific careers, the vocational training professional education).

The central institutions were set up with this remit at the turn of the century, and do not provide university-type education, nor do they have a research function (other than research allied to teaching). Thus the criteria for the tertiary education council are not base.

Yours faithfully,
I. S. MACDONALD,
184 Albert Road, Dundee.



Dr David Corke, senior ecology lecturer at North East London Polytechnic, spotted the rarest snake in the world while he was out looking for lizards. The snake, the couresse, is only found in the Maria Islands near St Lucia. It is quite harmless, but was almost wiped out when mongooses were introduced on St Lucia 100 years ago to kill the deadly Fer-de-Lance snakes - which ironically survived.

The couresse has only been seen 20 times in the last 25 years, and not at all since 1980, suggesting that it might be extinct. Dr Corke was in the Maria Islands woods studying ground lizards just after dawn. He saw the snake coming towards him across a pile of leaves, "grabbed it, weighed and measured and photographed it, and got some other scientists to come across and see it. Then I released it where I found it. I never saw it again."

Specialist unit fights for cash

by Olga Wojtas
Scottish Correspondent

A specialist unit set up to advise and train further education staff which is now to lose its main source of funds will fight to continue its work.

The Scottish Vocational Preparation Unit was set up in 1962 at Jordanhill College of Education, Glasgow, to give particular attention to the Government's 16 to 18 action plan and the New Training Initiative. It is funded by the Scottish Education Department.

When its management steering committee recently asked the SED to consider making it a permanent body, Mr George Younger, Secretary of State for Scotland, replied that the unit should be disbanded when it comes to the end of its initial three-year funding in March.

According to Mr Younger, SCVO's work should be absorbed "within the mainstream of the work of the various agencies concerned with the Youth Training Scheme, the adult training development programmes for school and further education. The SED is not to renew SCVO's annual £100,000 grant. However, the annual £27,000 annually from the Manpower Services Commission as well as grants from other bodies, and there is a possibility the MSC may consider funding SCVO.

UGC calls for extra cash for Ulster

continued from front page
University's planning. But the UGC advisory party says this should go up to £100,000, a mean £23.5m. The UGC also wants an additional £1.5m by 1989.

The director of the new institution is committed to that scale of expenditure in Londonderry, and is already starting new degree courses there this autumn. Plans are with the Department of Education in Northern Ireland for new buildings, but so far it has not approved them or committed any money to Magne.

The working party also hints that more money may be needed to develop research at Ulster University.

Efficiency group set up by OU

An efficiency steering group has been appointed as promised by the Open University to inquire into internal organization of the university.

It will parallel the committee chaired by Sir Alex Jarratt, chairman of Reed International, who is carrying out a series of studies into the universities.

The OU group, which will be chaired by Mr Frank Ruchmann of Tube Investments and a member of the OU council, was appointed by the university's council.

The university has been assured by the Department of Education and Science that the study is not going to be dealing with academic judgment.

The question as to whether professional consultants will be brought in to carry out the inquiry will be answered in September when the first meeting of the group is expected.

The OU group is composed of a mixture of internal and external appointees which include Sir Austin Blide, chairman of the visiting committee; Mr Andrew Blewies, a member of the science faculty; Sir Clifford Butler, vice-chancellor of Loughborough University; Mr K. Chivers, of the efficiency unit at Whitehall; Mr Joe Clinch OU secretary; Miss J. Gilbey, of the science branch of the DES; Mr J. Smith, secretary at Imperial College; Dr Stephen Sykes, OU assistant secretary and Dr John Horlock, vice-chancellor.

Alvey profit conflicts loom

by Jon Turney
Science Correspondent

Conflicts of interest between companies and academic institutions doing joint research under the Alvey computer research programme are likely as the work moves toward commercial exploitation.

Universities and polytechnics will be free to negotiate their own terms for returns on products developed under the programme. This is the first formal departure from the normal stipulation that the British Technology Group handles such deals.

However, there is some disquiet in universities at the Alvey directorate's proposal to make the guidelines for the Science and Engineering Research Council's cooperative grants scheme the basis for calculating payments to academic institutions.

Intellectual property rights under the £350m Alvey programme administered from the Department of Trade and Industry, have been difficult to

finalize because the BTG's right of first refusal to exploit publicly funded inventions is due to be dissolved, but no one knows when the Government will finalize alternative arrangements.

The interim position agreed between the departments involved is that rights in the products of joint industry-academic projects will rest with the companies involved, to encourage commercial exploitation.

The SERC has persuaded the Alvey directorate that the guidelines for its cooperative grants scheme should be the basis for agreements under Alvey. But there is disagreement on the rigidity of the royalty rates the SERC normally suggests.

The SERC guidelines suggest royalties of 15 per cent on computer software developed jointly, for example. But some universities think they can do better. Miss Susan Jacobs, research contracts officer at Imperial College, London, said: "We would like freedom to negotiate to reflect the normal market position." She said

software royalties well above 15 per cent were not uncommon from joint research projects.

A spokesman for the British Technology Group, who normally negotiate on behalf of academic institutions involved in cooperative SERC grants, said that the figures in the guidelines were normally an upper limit. However, Dr Timothy Walker, of the Alvey directorate, said the scheme's guidelines were not meant to be rigidly applied, and it was up to universities to negotiate a better return if they could.

More and more universities are being drawn into the programme as new Alvey contracts are let. Last week, Mr Kenneth Baker, the information technology minister, announced a further £30m worth of work, backed by £30m from companies. The new contracts, all in techniques for making very large scale integrated circuits, involve 24 universities, polytechnics and other non-industrial research establishments in collaborative work.

Study slams YTS over job discrimination

by Patricia Santinelli

The Youth Training Scheme is not only reinforcing the existing class, race and ethnic barriers but dividing young people into employable and unemployable, according to a South Bank Polytechnic study.

The study which is based on a survey of YTS at Southwark College of Further Education was conducted by the Lifestyle Enhancement Research Unit, based in the social sciences department of the polytechnic.

The unit stresses that although this is only a small scale study, its findings, if similar to other schemes, have serious implications for the whole of YTS and need further investigation.

Altogether, the college has some 300 YTS places and the unit looked in particular at Mode A courses run for the Association of British Travel Agents, Mode B2 paramedical course and Mode B1 mixed projects.

It found that the majority of young people on Mode A ABTA courses were middle class, white and lived outside Southwark. They had been mainly selected by employers after seeking employment in the travel business had at least two O levels.

Mode B2 trainees on the other hand had been selected by the careers service. Some had been interviewed for Mode A courses but had found themselves on Mode B without any explanation.

In the case of Mode B1 trainees, the unit says there appeared to be some subtle discrimination by the careers service - probably due to the rigid structure of YTS - and most of the young people on such schemes were unaware that there was even any choice of mode.

The unit also found that the majority of trainees on Mode B courses belonged to ethnic minority groups and lived in Southwark or adjoining boroughs.

Mission delayed

The joint British, German and American space science mission due for launch from Florida last Thursday has been delayed by technical problems. The three spacecraft, which will be used to study the solar wind reaching Earth, were due for a rescheduled launch yesterday.

"There would be substantial activities which each institution would need to carry out if it were to fulfil the meaning of the word 'university'."

The report also reminds Queen's that the UGC has decided there is no academic justification for it to retain four-year undergraduate courses, although some might be continued on social grounds or to protect minority subjects.

The Privy Council has agreed the proposal for a new charter for the University of Ulster, and its charter day is set for October 1. The students' union of the new institution will not after all be restricted in its activities to those deemed to be "educational".



"TO HELL WITH THE FRINGE-WATCHING THIS LOT SQUABBLE IS THE BEST SHOW IN TOWN!"

Courting couple

Heriot-Watt University's central buildings in Edinburgh will exchange one court for another when the university moves to a single site campus outside the city.

The buildings will house Edinburgh's new sheriff court house, planned to be completed by 1992, three years after the university moves to its Riccarton campus.

The purchase price will not be negotiated until six months before the entry date, but Heriot-Watt is understood to dispute the district valuer's estimate, thought to be around £1.2m. If there is no agreement, the case will go to the Lands Tribunal for Scotland.

Heriot-Watt is entitled to keep 28 per cent of the purchase price, since part of the original cost came from benefactions, not public funds.

Privatization protest will halt action plan work

A time bomb is ticking away under the government's 16 to 18 action plan, the further education officer of Scotland's largest teaching union has warned.

Mr Arthur Houston, of the Educational Institute of Scotland, has revealed that from next week EIS further education members will boycott work on the action plan, until there are guarantees that the scheme will not be available to private agencies.

The boycott is likely to have most effect on examinations due to be held in December, when according to Mr Houston a substantial number of the 150 chief examiners and 600 markers and moderators would be EIS members.

The EIS attack is aimed at the Scottish Business Education Council and Scottish Technical Education Council who the union claims are undermining local authority further education by allowing private training agencies to offer courses which have been produced by local authority staff. Scottec and Scottec have already said that they will concentrate on

schools and colleges, and have also stressed that outside agencies would be subject to scrutiny both by themselves and the Scottish Education Department.

EIS further education staff had emphatically rejected privatization by an 86 per cent vote to take action in a secret ballot last month.

Union members are being asked to boycott all Scottec and Scottec committees on which they sit, to refuse to act as moderators or examiners for the two agencies' exams, to stop all work on modules for the 1985/86 session, and to boycott all action plan working parties which have any connexion.

The acceptability of Scottec and Scottec awards rested on the professionalism of local authority colleges and teaching staff, said Mr Houston. The EIS would be seeking support from the Scottish Further Education Association, college of education and central institution staff, he added, and expected full support from the Scottish TUC's training and education committee which is to meet later this month.

Brain drain turns to 'flood'

from Geoff Maslen

MELBOURNE
The brain drain of bright young scholars from Australia to other countries is turning into a flood. According to a research report released this month, almost 30 per cent of graduates with doctorates and 15 per cent of those with masters degrees had to go overseas in 1982 because there were no jobs in this country.

Moreover, the rate of exodus has been steadily increasing. The report says that between 1976 and 1982, the number of PhD holders leaving the country to work elsewhere increased by more than 13 per cent, while the number of those leaving with masters degrees rose by 10 per cent.

The author of the report, Dr Margaret Powles, says that most of the highly qualified graduates going overseas may be irretrievably lost to Australia. She says that the majority of postgraduates would prefer to remain in Australia as research workers, but the struggle to find a suitable position with adequate finances and resources proves too difficult.

Dr Powles' study was commissioned by the Council of Australian Postgraduate Associations. It found that research jobs have been disappearing in Australia because both government and private industry are spending less on research and development. In contrast to other developing nations, Australia's total commitment to research and development declined by 30 per cent in the private sector and 11 per cent in the government sector between 1973 and 1979.

The Powles report points up Australia's failure to offer adequate support for the training of researchers and highlights the declining availability of research awards. Even for the students lucky enough to win a postgraduate award, the sums involved are such that life on the poverty line becomes a reality for most. Some 85 per cent of students on a Commonwealth postgraduate award, Dr Powles found, rated their income as inadequate even had to work part-time or sometimes full-time while studying.

The Commonwealth award has been near the poverty line for at least five years for a single postgraduate and a married postgraduate with three children, the stipend is actually below the poverty line.

Fifteen years ago, a Commonwealth award holder received 74 per cent of the average male earnings for that year. In 1983, the award was equal to only 40 per cent of average male earnings. When adjusted against the consumer price index, the value of the award has declined by 14 per cent in the past 18 years. But because the Commonwealth decided to tax the award in 1979, its real value has, in fact, drastically declined.

It has long been common, of course, for graduates with PhDs and masters degrees to work in other countries for one or two years. But the latest study has found that young scholars are now staying away and many are being actively recruited from Australian campuses by international companies.

According to Dr Powles, "post-

graduates are one of Australia's most valuable and in present times, most needed resources. During higher degree studies, postgraduates perform on average 40 per cent of the original research in universities. In some areas, particularly in the fields of science and technology, many vital research programmes would collapse entirely should postgraduate support be removed."

Dr Powles says that Australia's research effort depended on a constant supply of higher degree graduates to the workforce. They took with them into government, business, industry and education, the expertise not only of their own specialization but a "whole range of knowledge in related fields". Yet more and more Australian graduates were moving into the economies of other countries because of the lack of opportunity in Australia.

In her report, Dr Powles recommends that:

- The number of government scholarships be increased so that by 1989 5,000 full-time postgraduates are being supported at any one time;
- Awards be increased to cover basic living costs, and allowances for dependants also be increased;
- Private sector support should be in addition to, not a substitute for, scholarships provided by the Commonwealth.

- University scholarships be tied to the level of Commonwealth awards.

The report says that increasingly, Australia's research burden is being placed on universities but that this is a burden which universities are not being given the support to undertake.



US swimmer Tracy Caulkins: benefitting from the collegiate changes

Women athletes' success puts pressure on ruling

The spectacular success of American women in the Los Angeles Olympics has put new pressure on Congress to pass legislation reversing a controversial ruling by the supreme court earlier this year.

Sports commentators analysing the startling progress by American women in swimming, running, basketball and volleyball last week gave much of the credit to an obscure civil rights law, Title IX of the 1972 Education Amendments.

Passage of Title IX 12 years ago radically altered conditions for women athletes on campuses throughout the United States. The law prohibits educational institutions which receive Government funds from discriminating against anyone on the basis of sex.

In 1972, college athletic programmes were the last bastions of sex discrimination. But a rash of legal suits following passage of Title IX made universities move sharply to ensure that women students received the same facilities and opportunities as men.

Mr Kenneth Bastian, a member of the US Olympics organizing committee, claimed last week that Title IX was also responsible for a dramatic qualitative improvement in women's athletics. While men have been able to shave only seven minutes off their marathon speed over the past de-

Singapore's student population has boomed in the last decade. Geoff Maslen reports

The v-c who has money to spend

WORLDWIDE

Professor Lim Pin would be the envy of most university vice chancellors in the western world. As head of the National University of Singapore, Professor Lim is in charge of one of the city's fastest growing institutions.

While universities and colleges elsewhere struggle to cope with financial cuts and declining enrolments, Singapore's higher education population has jumped by more than half over the past 10 years. In that time, too, student numbers in technical and vocational institutions have doubled.

"People are Singapore's greatest asset, its principal resource," Professor Lim said. "The Government has recognized this and has backed education with substantial funding."

Seated in his large, airy, seventh-floor office overlooking the 150-hectare campus at Kent Ridge, Professor Lim seems to view the future with considerable optimism. He has reason to.

Enrolments in the university are increasing at the rate of 500 students a year and will peak at 15,000 before the end of the decade, twice what they were in the late 1970s.

The expansion has entailed a \$350m building programme with a further \$300m being spent on a new teaching hospital for the university's dental and medical schools. With a \$200m year recurrent budget, a total staff of some 2,300 and 13,000 students, Professor Lim is in charge of a thriving, complex organization.

A British-trained physician, Lim Pin was appointed vice chancellor of Singapore in 1981 - a year after it had been created from the merger of the University of Singapore and Nanyang University. The Nanyang Institute of Technology was established on the site of the former university at Jurong to train a more vocationally-oriented engineering workforce. Although it is administratively autonomous, the institute has close academic ties with the university and the majority of its students complete their first year at the National University before transferring to the Jurong campus.

It is an unusual, not to say unique, relationship between two independent bodies, but according to Professor Lim, it seems to be working and the first crop of graduates will emerge from the institute next year. As chairman of Nanyang's academic board, Lim Pin has a key influence on Singapore's two higher education institutions.

Although the university has its own faculty of engineering, it was felt that the oriented courses offered here needed to be counterbalanced by a more practical-based programme, he says.

Apart from engineering, students enrolling in the university have seven other faculties to choose from, as well as eventually three postgraduate schools in medical and dental studies, and management.

There is intense competition for places among students seeking entry to the university and only one in two qualified secondary school applicants is successful. Singapore's university students are very much part of an educational elite, comprising as they do the academically top 10 per cent of their age group.

This situation not only engenders a fiercely competitive ethos in school but it also carries on upwards in further education. As with the administrative

structure, so are the forms of assessment in Singapore largely derived from British models. Formal exams are the rule and they count for 80 to 100 per cent of a student's achievement in each subject.

But the implications of too excessive a competitive milieu have not been lost on the university. "One of the things we are trying to do is to make sure graduates end up as team players," Professor Lim said. "So we run a course in basic human relations covering social and psychological behaviour; it is compulsory for all students and entails some 10 hours course work towards the end of their studies."

Singapore also enrolls up to 20 per cent of its students from other countries, the great majority Chinese Malaysians. "There have always been close links with Malaysia and we want to be able to offer our nearest neighbour some of the benefits which education can provide," Lim Pin said.

In fact, Chinese Malaysians suffer considerable education discrimination in their own country and many are forced to look abroad to further their studies. Singapore capitalizes on this demand by setting higher entry standards for its foreign students than even those required for locals, thereby ensuring it skims off the academic cream.

Foreigners must also pay fees that are about 50 per cent higher than those required of Singaporeans, although at \$1,500 a year these still represent only a fraction of the total educational cost. The public also demands that foreign students remain in Singapore after graduation and work for at least three years with a Singapore-based organization. Professor Lim believes that this requirement is only rigidly enforced for medical and dental students.

In any event, it is not certain how many foreigners stay on permanently in Singapore, given the advantages graduates enjoy and the minute unemployment among the university leavers. The latter, moreover, is a reflection of the overall low unemployment rate of about 2 per cent, but is also because of Singapore's planning policy that tries to match future demand for professionals with the numbers being trained.

Professor Lim is a member of the government's manpower planning committee and he says it is this committee which, in consultation with the university, sets the quotas on student numbers in each faculty and which determines the institution's research and development policies.

Singapore, of course, is run as a somewhat benevolent parliamentary autocracy and there are few areas where government influence is not felt. Are there limits, then, on academic freedom of expression? Professor Lim said: "The National University of Singapore is the only university in the country so we have to work with the government. On the one hand we have a social responsibility to the state, but on the other academics are also able to speak out - in their own capacity - with no fear of retribution. The university itself, however, is not



Lim Pin: in charge of a thriving university

the voice of opposition."

It was the students of Singapore who spoke out, rather than the university or its academics, when the government put forward its novel eugenics scheme earlier this year. Reversing a decade-long policy of encouraging parents to "stop at two" - and penalizing those families with more than two children - the ministry of education announced that offspring of well-educated mothers with three or more children would be given preference in school admissions.

The ministry acknowledged that the "stop at two" campaign had been effective but that less-educated women were still having twice as many babies as mothers with tertiary education. It urged women with university or professional qualifications to have more children and said they would be given priority for entry into top schools.

Later, the ministry of finance said that working women who had finished secondary school with at least five exam passes or who had higher qualifications would be eligible for income tax reductions, as well as the normal child relief, if they had babies.

Singapore's prime minister, Mr Lee Kuan Yew, had earlier said that efforts had to be made to try to reshape the republic's demographic configuration "so that our better-educated women will have more children to be adequately represented in the next generation". But he added a further controversial element when he claimed there was increasing evidence that genes were a greater determinant of a person's performance than education or environment.

Professor Lim approaches this political minefield with some care. "My own view is that intelligence is a consequence of two factors: environment and heredity - but which is predominant no one knows. Whether the government's new policy is desirable may be debatable but certainly

Rat race begins at five

The success-orientation of Singapore's education system starts right at the bottom. How well young children cope with their first three years at school affects their entire educational future.

Although parents may choose for their children any of the four official languages - Malay, Chinese, Tamil and English - as the main medium of instruction, pupils are required to study two official languages, with English either as a first or as a second language.

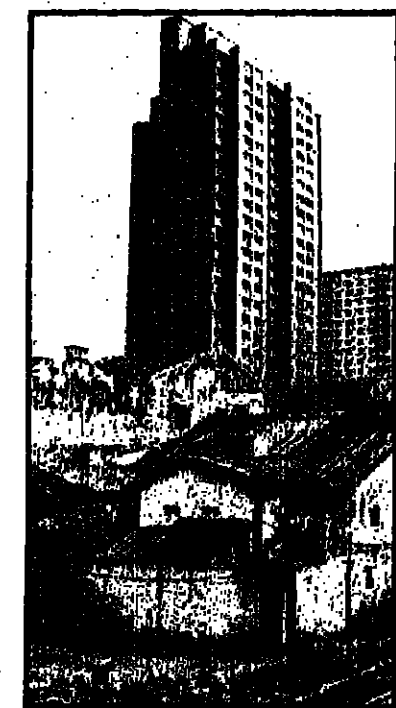
The first three years of primary education emphasize the learning of languages instead of the acquisition of factual knowledge. But it is on the basis of a child's achievement in this time that his or her future is determined. At the end of the third grade, pupils are streamed into a "normal" bilingual course, an "extended" bilingual course, or a monolingual course.

Pupils in the normal and extended bilingual courses study two languages as well as other subjects and they will complete primary school in six and eight years respectively. They then take the primary school leaving examination before going on to secondary school. Those in the monolingual course have to study for another five years and at the end they also sit for a certificate examination. They may then take up vocational training.

The primary school examination determines where secondary school students are placed. Top performers are streamed into a secondary special course and study both English and Chinese at first language level. The next best are placed in a secondary express stream while the remainder take secondary normal courses, although both groups study two languages. At the end of fourth year, the first and second-grade students sit for the English-based O level examinations before proceeding to pre-university courses.

Again at pre-university level, students are streamed - into two-year courses in junior colleges or three-year courses in school centres. And when all this streaming is finally over, one in ten of those who started up the education ladder 12 or 13 years earlier will be admitted to the halls of higher learning.

What effect all this pressure to perform has on Singapore's young people is unknown, except the race must seem unending and the competition unrelenting. Yet the Government appears convinced that the island-state's future rests on academic rivalry. The minister of state for education, Dr Tay Eng Soon said last month that students should keep striving to score distinctions in school because it was the spirit of wanting to get ahead that had spurred Singapore to where it was today. "Motivation in school augurs well for the nation which would be in trouble if people were lulled into a false sense of security," Dr Tay said.



The old and the new

New Zealand increase 'not enough'

from Lindsay Wright

WELLINGTON
The NZ\$4.625m a year increase given to the universities at the end of last year to compensate for increased student numbers was only half the amount requested by the University Grants Committee, according to the UGC's annual report to Parliament. The UGC's report, tabled during the brief pre-election parliamentary session, showed that the 1983 rolls of 56,513 were 2,008 above the roll forecast on which the 1980 quinquennial grant was based.

The official forecast of student rolls was not accepted by the UGC even before the quinquennial. That forecast was based on an increase of student numbers from 1979 to 1983 of 3,917 and the actual increase of 7,780 was almost double that number.

In its annual report this year, the UGC said that it expressed concern in 1979 because the comprehensive student forecast was well below its own and no provision had been made for the additional staffing which would be required for any appreciable number of students in excess of that forecast. "This concern was removed when it was agreed by Cabinet as part of the original package that if student numbers varied by more than 1,000 in any one year from those forecast the block grants would be reviewed."

"The official forecast, in fact, turned out to be too low and a review based on an excess over forecast of 1,235 students was necessary in 1981 and a second in 1983 based on an excess of 2,608 students in that year. (Present trends in student enrolments suggest that a third review will be justified in 1984.)"

National president of the Association of University Teachers, Heather Simpson, claims that the universities have had to suffer a double penalty from the combined effects of cuts in the basic level of the quinquennial grant and this undercompensation for roll increases.

The effects of the increasing student numbers, she claimed, include extra stress being put on staff and problems caused by classes which are too big for the lecture rooms available.

"At most universities the enrolments in a significant number of courses are being restricted. The effect of the refusal of the government to fund universities on an equitable basis has been to force an end to open entry."

US urged to reconsider Unesco decision

from Peter David

WASHINGTON
The United States is coming under mounting domestic pressure to review its decision to withdraw from the United Nations Educational, Scientific and Cultural Organization (Unesco) by the end of this year. In the latest development, America's own representatives on Unesco are claiming that the decision was too hasty and that the most of the complaints the State Department has made do not stand up to scrutiny.

A report issued last week by the US National Commission for Unesco, which monitors American liaison with the Paris-based agency, contains a point-by-point rebuttal of the Reagan administration's explanation for withdrawing. It denies the claim that Unesco is more politicized than other international organizations and says its controversial policies on journalism have not yet curbed the freedom of the press.

Unesco's labyrinthine debates on the adoption of a new world information and communications order have been a primary cause of the political controversy surrounding the agency. But the US commission says the proposed policy has already been softened under pressure from western members and has not yet been finally approved or implemented.

The report says the common impression that Unesco advocates licensing journalists is untrue, and that its much-criticized support for the Palestine Liberation Organization and similar movements consists of relatively small funds for teacher training and educational activities. The report also

denies a State Department charge that Unesco itself had adopted a "Statist" policy advocating government control of education and culture.

"It is in the nature of international organizations to comprise countries with different viewpoints and systems of government. That is the main reason for their existence. The point of an international body like Unesco is to provide a forum where differences of attitude and outlook can be reconciled amicably and constructive policies can be hammered out," says the report.

One of the most controversial parts of the commission's report attacks the timing and tactics of the United States' withdrawal announcement.

The report says the Reagan administration had made its displeasure with Unesco plain but gave no indication that withdrawal was under serious consideration until the pull-out was announced last December. Praising the reform recommendations put forward by Britain last May, the report says a credible American threat to withdraw, issued in enough time to allow the agency to consider concrete reform proposals, might have served some purpose. In fact, the United States served notice of its intention to withdraw after Unesco had adopted the basic elements of a six-year programme.

The commission's report is only the latest in a series of domestic criticisms of the decision to leave Unesco. The US National Academy of Sciences, the National Science Foundation and the American Council on Education have all said that reform from within would be better than a pull-out that could jeopardize the future of the agency.

Albanian academics criticized for bureaucratic approach

The "publish or perish" syndrome has at last hit Albania. According to Ramiz Alla, chairman of the Presidium of the Peoples Assembly and strongly tipped by western observers as successor to the aging party leader Enver Hoxha, higher education in Albania is hampered by "mediocre and perhaps even incompetent" personnel, who not only have a poor teaching record, but who fail to achieve their own higher qualifications in a reasonable time, and who publish few if any learned articles.

Speaking at Tirana University at the end of May (the text reached the West only at the beginning of August), Alla made a number of sharp attacks on the whole structure of Albanian higher education. This was not altogether

easy. Party doctrine maintains - and Alla reiterated - that education in Albania's one university and several higher colleges is free from the "severe wounds of social differentiation" characteristic of the capitalist and "revisionist" countries (the latter term being Albanian jargon for the rest of the socialist world). Nevertheless many of the defects he pointed out seem to originate from the Albanian system itself.

Students entering higher education are frequently found to be inadequately prepared. At present, some 20 to 25 per cent of secondary school leavers proceed to higher education - a figure less impressive than it seems at first glance, since secondary education is not compulsory, nor even general in

Albania. There is no competitive entrance examination (which could lead to "social" or "regional" selection) and places in higher education are allotted on average school marks.

A new selection procedure, however, would merely place extra strain on the educational bureaucracy. All Alla could recommend was a tightening of Party and government control over the whole educational process and the revision of syllabuses to ensure scientific and pedagogic continuity.

Teaching at the university and colleges, Alla went on, is largely a mechanical reproduction of textbook material, and students are given little encouragement to show the practical and creative spirit and technical intuition advocated by the Party.

Much more attention, Alla urged, should be paid to postgraduate and research work, including the mastering of basic foreign languages; university staff should take part in "complex and major collective studies" including cooperation projects with industry.

At the same time, university bureaucracy must be curbed. Lecturers are bogged down in meetings and analyses, studies and follow-up working groups and the preparation of reports. This bureaucratic avalanche, said Alla, must be curtailed, and must be taken that no one remains too long in an administrative position.

Learning to keep his nose to the grindstone

Malaysian student, Lam Kok Chong (left) says the first time he noticed about studying in Singapore was the academic pressure. "Students here work very hard - right from the moment they start school - and it doesn't stop all the way up," he said. "It's much tougher than in Malaysia and my first year here was very difficult, but you eventually get used to studying six days a week every week."

Lam Kok Chong is a third-year student at the Nanyang Technological Institute. One of some 300 Chinese Malaysians among the 1,500-strong student body. He is taking a four-year course in mechanical and production engineering and will graduate with a degree from the National University of Singapore.

He says he applied for entry to the institute because it was unlikely he would have been able to get a college education in his own country and because his home is in Johore, just across the causeway from Singapore.

Lam had to gain high marks in his Cambridge-supervised, GCE exams to win a place at Nanyang. Not only is Singapore's higher education system modelled on the British, its secondary exam system is run by them. In the scores established by Cambridge markers are students such as Lam Kok Chong selected for higher education in a country 16,000 miles away.

Future Chinese Malaysians may have more trouble than Lam in getting access to the Singapore university or institute because he was among the last to complete school in Malaysia with English as the medium of instruction. The Malaysian government has decided that Malay should be the official language and it is now the medium in schools, colleges and universities. Those wanting to have a command of English will, presumably, have to take special classes or employ their own tutors.

That is not of great importance to Lam Kok Chong however, as he grapples with studying 10

subjects and facing major exams in each that count for 80 to 100 per cent of the total assessment.

The work is not all theory, of course. Nanyang was set up to give greater emphasis to the practical applications of engineering and students like Lam complete 10 weeks' practical course work each year, along with a six-month stint called "industrial orientation" in their final year.

Lam Kok Chong pays \$1,500 (£335) a year in fees and a further \$70 (£25) a month for his hostel room on the Nanyang campus. If this represents a considerable investment on the part of his parents, it is one destined to pay high dividends. When he completes his degree, Lam will be required to work for up to three years in Singapore before he returns home.

He will then be a qualified, experienced engineer and with the rapid expansion of Malaysia's industrial infrastructure, Lam's skills will then be very much in demand.



Vic Thorpe: not an authoritarian

Collective action has top priority

"I'm not an authoritarian—I see myself as a facilitator," says the man brought in by the NUS to find more effective ways of translating the wishes of its elected leaders into action.

Vic Thorpe, 43 next week, has the task record to support this view in a task which would, if someone else was doing it, be a recipe for confrontation with the organization's staff.

He takes over this month as general manager of the NUS, a new job title for the old role of chief executive over which many of the organization's internal battles including a strike by staff were fought.

Mr Thorpe is anxious to proceed cautiously, by talking through problems rather than by imposing solutions—and above all sees his role as a communicator between the zeal of his executive and the cumulative experience of his 70 staff.

Behind him there is a career with one of publishing's more controversial and colourful characters and a more recent and dramatic escape when he admits to "blowing the whistle" on the internal workings of a Geneva-based international trade union federation which led to the resignation of its secretary-general.

Born into a working class family—a father a bricklayer and mother a home help—in that epitome of middle class England, Tunbridge Wells, Mr Thorpe attended the Skinners' Company school in the town before reading English at King's College, London.

After a year working with the commercial manager of the South East Gas Board he was snapped up by publisher Mr Robert Maxwell first to handle academic projects and then as an in-house editor for the Pergamon Press, leaving a year or so before the Board of Trade inquiry to join another publisher, George Allen and Unwin.

At seven years in publishing, four of them with Maxwell, he went to Geneva for 18 months as assistant to the secretary general of the International Federation of Chemical, Energy and General Workers' Union (ICEF), Mr Charles Lovinson.

He returned to Allen and Unwin for three years, but went back to the ICEF in 1976 essentially as representative to the British-affiliated unions before being appointed deputy secretary-general in 1978.

The ICEF, a federation bringing together 7.5 million workers in 22 countries, provided some deplorable tasks as the activities of the multinational companies increased. But Mr Thorpe says: "After some time I realized that although the organization had vision, its administration, both in terms of finance and politics, left something to be desired."

After exhausting the internal channels for his growing reservations, he resigned, giving his reasons in detail to the ruling executive committee.

The irrevocable step of resignation taken, he came back to Britain with the Swiss woman he had married and their child, and joined the Soil Association, the ecological pressure group fighting for an end to intensive chemical farming, as campaign director.

It was intended on both sides as a fairly temporary attachment—and the advertisement for the NUS job was an opportunity to carry his enthusiasm for collective action into an area where he feels Government policies are making divisively competitive individualism the undesirable norm.

Bright young executive

The education world will be meeting a new and varied team of young people over the coming months as the full-time executive members of the National Union of Students begin to make their marks.

There are seven full-timers on the executive if the Scottish and Welsh chairmen are included. And this year all but one are Labour party members. They have also reached the top more quickly than their predecessors, who tended to spend several years climbing the political ladders. President Phil Woolas, for example, had one year as a part-time member of the executive and was completing his first term as treasurer when he was elected. David Aaronovitch, on the other hand, the last

non-Labour president, served four years on the executive before taking on the top job.

In part this reflects a conscious decision by the dominant National Organization of Labour Students to field candidates with immediate experience of the different sectors of education.

This injection of enthusiastic but less experienced elected leaders inevitably places a strain on the organization's staff. And the man who will be bridging the communications gap is Mr Vic Thorpe, the NUS's new general manager, who begins work at the Holloway Road headquarters this month. Profiles by DAVID JOBBINS and OLGA WOJTAS

Technologist breaks tradition

New NUS president Phil Woolas represents a clear break with tradition and a reflection of changing priorities within the organization. For unlike his predecessors, he studied at a further education college, although he then went on to Manchester University.

He was born in Salford and later moved to Lancashire where he went to Nelson Grammar School before taking A levels at Nelson and Colne College of Further Education, where he became union treasurer.

At the same time he was getting heavily involved in party politics, joining Ramsay Labour party at 16 and becoming a youthful member of its general management committee.

At Manchester chair of the student council was followed by the general secretaryship in 1981/82, having graduated in the summer of 1981.

He joined the NUS national executive in 1982, while he was also registered for a part-time MA in logic and scientific method at Manchester, and was elected treasurer in succession to Alan Watson in 1983. He is 24.

He is regarded by friends and enemies alike as a confident and competent organiser rather than a flamboyant rabble rouser and is determined to bring the advantages of new technology to the NUS. He has ambitious plans for computer terminals in union offices for a rapid and comprehensive exchange of information to back up the organization's campaigns.

But organizational questions are not an exclusive preoccupation—and the new president has firm views on how educational policies should be developed.

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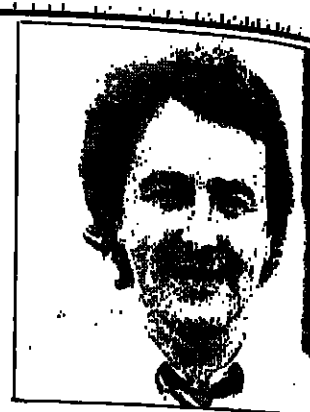
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Steve Morgan: inflating welfare campaigns

Anticipating the problems

Vice president welfare Steve Morgan was first elected to the executive last year and has firm views about the widespread attitude that his responsibility is "soft".

"VP welfare is not about being a social worker or about picking up the pieces after problems occur," he says. It is instead a two-fold political role of guiding student unions to refer individual cases to trained social workers while initiating campaigns to build collective responses to problems before they arise.

Born in Maesteg in South Wales, he is the oldest member of the executive at 32.

With a City and Guilds course at Nenth Technical College behind him, he was at work for eight years, becoming a shop steward and convenor for the Amalgamated Union of Engineering Workers.

He began a degree in politics and philosophy at University College, Cardiff, and was elected a substantial officer 10 weeks into his first year. He took up the job, as union general secretary, after passing his first-year examinations, and also became deputy president of NUS Wales, after the Easter 1983 conference.

No dramatic changes of direction are expected from the changeover in presidents. Mr Woolas is wedded to the "new deal" concept launched by his predecessor, and wants to maintain and refine it to establish the position of students and other young people as independent adults.

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Harold Silver

One man's head start on the American war on poverty

March 24, 1965, US House of Representatives. Carl Perkins (Kentucky) is speaking in the debate on what is about to become the Elementary and Secondary Education Act. It is one of the main speeches and he makes a series of considered, emphatic statements:

Sixteen years' service on the House Committee on Education and Labor has given me a deep appreciation of education's role and legitimate needs. I firmly believe that the educational needs of the United States will be met only when the federal government accepts its responsibility to provide a greater share of the cost of public education

In my judgment, the House has before it today the greatest legislative challenge ever faced by a Congress in our nation's history

No domestic measure ever presented by any president to any Congress, has ever generated greater congressional interest and support.

Perkins' work for education and social legislation preceded this educational thrust of the war on poverty of the 1960s and survived it. The events of the mid-1960s have to be understood at every level of American society, were particularly significant and memorable to poor homes and communities and are not just historical relics.

When President Johnson proposed his educational measures in January 1965 it was two veteran education campaigners who presented them to Congress—Wayne Morse in the Senate and Carl Perkins in the House. The ESEA proved to be part of the largest package of educational developments in US history—ranging from preschool Head Start in 1964 to a higher education act and many others. Perkins was never far from the battles and the opportunities.

For the past four years Perkins has been just off stage in my life, as I have tracked down participants in the American (and British) educational strategies against poverty of the 1960s and 1970s. I never met Perkins, but I have known who he was and knew him well. Albert Quie, former Republican representative and adversary. The Committee on Education and Labor. Francis Keppel, who was Commissioner of Education through the critical educational developments which began to take shape in the latter part of Kennedy's presidency and became (in Johnson's ill-advised terminology) the war on poverty of the mid-1960s. Keppel commented that the debates on the legislation in the House and Senate were "at best the icing on the cake" since the votes by then were for the most part lined up. The cake was the hearings before the committees and subcommittees. That, to no small extent, meant Perkins.

By 1965 he had been a member of the Committee on Education and Labor for 16 years, and he was to be its member and chairman for 19 more. The ESEA was processed through a general subcommittee on education of Perkins was aware that the issue of federal aid had been debated, abortively in the main, for each of his previous 16 years on the committee. Now the issue of federal aid had been decided in with that of action on behalf of low-income (families) and disadvantaged children (the explicit target of the proposed act), and in the subcommittee he commented that the proposed legislation was "founded upon information developed at hearings we have had in the past" and "complemented the administration on its approach. He was a quiet person,

but persistent, and learned how to manage this subcommittee, and from 1967 its parent committee and the icing on many cakes.

It is difficult to remember the impact of Head Start, Title I, Follow Through, Upward Bound and the countless other projects funded by foundations, states and the federal government. In a different economic climate, amid dominant conservative attitudes, it is difficult to assess the meaning and value. They differed in scale, from single school projects to nationwide preschool policies like Head Start and school policies like Title I. They ranged from psychological underpinning for and experiments in early childhood education, to youth employment programmes, pre-college programmes (beginning with Talent Search) and programmes concerned with help for college students and the training of teachers for work in disadvantaged areas.

The pronounced aim was to mitigate or abolish poverty (or more often to combat poverty, or do something about it—the aim was rarely precise) through special educational programmes—though education was only one of a range of measures being pursued through the Economy.

Opportunity Act and welfare, medical and other policies. The educational policies and projects pointed in many directions of possible action. Some were misguided, some were controversially associated with concepts like cultural deprivation (even "poverty" was often a euphemism for "race") and were over-optimistic. Some claimed to be and were, on many counts, successful—as educational programmes if not as panaceas for poverty. Evaluators, however, often pronounced negatively on the programmes' failure to achieve objectives they had not set themselves, or on children's failure to benefit from "compensatory" education—which they had not in fact received. Uncertainty accelerated from the late 1960s.

That was when the British versions of such programmes entered the scene. The early American programmes against disadvantage—incl. Title I—were little known in Britain. The Plowden committee on primary education, when it visited the US, was not over-impressed. From the end of the 1960s, however, the British educational priority areas projects, nursery developments under the urban programme, compensatory education projects based at Swansea and elsewhere, were trying to grasp the potential and the weaknesses of the American experience.

In the transcripts of the committee hearings and debates on the floor of Congress on education and the war on poverty many figures claim attention, including Commissioner Keppel, the leadership of the Department of Health, Education and Welfare, presidential aides, academic witnesses and others. Having met some of these people and many who were engaged at all levels in education as part of the war on poverty, I have always known I needed to talk to Carl Perkins.

He died on Saturday. He had in the recent past resented and resisted the undermining of programmes for which he had fought long and skillfully. He and his committees are a key element in understanding the history of social and educational ideas and action in the 1960s and 1970s—and not only in the United States. I wish I had met him.

Seeing from the outside in

Christopher Ormell asks how objective knowledge can be

It is easy to understand how people are capable of seeing things in a thoroughly subjective way; the difficult problem consists in saying how they manage to achieve some kind of approach to an objective view.

At one time the obvious reply to the question would have been that people achieve a more objective view of things by practising scientific method. But since Kuhn wrote *The Structure of Scientific Revolutions* this escape route has been blocked. Kuhn has shown by means of cogent general arguments and convincing detail that science is a much less rational enterprise than we all formerly supposed.

To take an example—which is incidentally not one given by Kuhn—there was a meeting in the seventeenth century between Rene Descartes and Blaise Pascal. Pascal had just established to his own satisfaction (and ours) that the explanation of the limited height which could be achieved with a free-standing column of mercury lay in the pressure of the air. However, he discovered that he was totally unable to convey this lucidity to the older man. Descartes was trapped within a conceptual framework, which blinded him, even to the brilliant illumination of the problem achieved by Pascal.

The answer lies, of course, in posterity. In the fierce competition which raged between rival accounts of the matter, a Pascalian view gradually survived, while the archaic assumptions of Descartes were consigned to the dustbins of history.

The general form of the answer to the question how people manage to achieve a kind of approach to objectivity—they clearly do, since civilization survives after a fashion—is that they are concerned to be seen to be right in the long term: if not by posterity, at least by their grandsons. As Pascal observed, we live in a state of history: if we lived in a social jungle, the impulse to attempt to be objective would probably melt away.

The central issue is how one can see anything as it really is when what we see is preclassified by our conceptual framework and coloured by our values. One does not need to go as far as structuralism to appreciate the powerful effect of presuppositions on the way we see the world; and these presuppositions are not effectively under our control, they are rather part of us; they perhaps define our characteristic mental identities.

In the Ames room in San Francisco one can't help seeing the child as taller than her father. And if our view of things is so powerfully distorted in the apparently "neutral" area of spatial perception, how much more must it be distorted when we come to the areas of experience which affect our feelings?

At one time people thought that the least mistakes lie in the innocence of childhood; that the mind might see most clearly when it was free from the contaminating effects of conceptual frameworks imposed by the adult society. But recent research on children's thinking in science dashes this hope almost completely. It has become clear that children do not approach the world of experience with minds that resemble blank sheets or unprogrammed microscopes. On the contrary, they approach the world of experience with their own childhood hypotheses, which are in effect guesses about the way they think it is.

Underlying the central issue is the nagging question whether we have a coherent use for the phrase "as it really is". But the answer seems to be that we do use this phrase confidently to retrospectively, on states of affairs whose descriptions have survived the test of time: for example, Pascal's explanation of the Torricellian experiment.

The child in the Ames room "really is" shorter than her father: 100 measuring exercises, using every conceivable method of direct length-comparison, convince us of this—and finally relegate the appearance of the child in the distorted room to the status of a visual illusion.

Some conceptual frameworks, then, clearly impress us with their reliability. It is not just experience of which we can ask the question whether we see it



as it really is. We can also ask ourselves about the relative objectivity of different conceptual frameworks. Most of us think that the earth "really is" approximately spherical in shape and that space "really is" three dimensional. So some conceptual frameworks seem to be entirely trustworthy, while others are obviously rather shaky.

The move which sceptical philosophers make at this point—that even our most favoured conceptual frameworks might turn out to be mistaken—hardly makes much impact on people of commonsense, because they immediately classify it as a hypothesis of the very shaky kind. This is the Johnsonian response to Hume; and anyone who believes that philosophy must respect commonsense regards this as axiomatic.

By these methods, then, one can establish at least a presence for objectivity; the possibility of objectivity. The colouring effect of values hardly impinges on examples of the kind we have considered. Values may have the effect of pushing back the frontiers of objectivity in areas of experience involving emotion and feelings, but they hardly affect our judgment that the earth is an approximate sphere. (Bruno and Galileo were not so fortunate in relation to the solar system however.)

It can be argued, nevertheless, that the problem produced by the presence of values is less fundamental than that of conceptual presuppositions. Analyses of the nature of values—such as those of Maslow and the present author—seem to show that values constitute a kind of motivation. Such motivations may give a greater desire to impose certain conceptual presuppositions onto experience—for example, to see the earth at the centre of things in the sixteenth century—but the damage is really done by the application of an unreliable conceptual framework, not by the drive behind it.

The main practical problem seems to be to get people to change their conceptual frameworks; to get people to explore the possibility of an improved conceptual framework. The facile solution to this problem is to say that all conceptual frameworks are insecure and therefore that life should be seen as a business of hopping from framework to framework, like lumberjacks riding on floating logs.

For most people this is not the way it is: some frameworks do seem to be vastly more reliable than others. One might put this point even more strongly, by saying that, like degrees of pollution, the range of different levels of reliability is so vast that we need a logarithmic scale to convey its width.

One can now see the philosophical problem of objectivity as being an extrapolation of the kind of worry which one feels when one sees innumerable cases of apparently hopeless conceptual immobility: of people, of whole societies, stuck in visibly outmoded conceptual

fixations. If so, the problem of objectivity would probably go away if we could find some way to inculcate conceptual mobility, but of a commonsense-respecting kind. This reduces the problem of the dissolution of the philosophical problem to an issue of education.

How to get children to inhabit conceptual frameworks lightly, without nailing themselves down to the floor in the process? How to get children to think, in a realistic, yet genuinely exploratory, way? These I take to be the central questions of modern education.

One can see mathematics as being at the heart of this issue. Peirce said that mathematics is the science of the hypothetical, that is, the science of *ifs*. At one time mathematicians regarded their subject as the study of statements of the kind "if p then q" where p and q were entirely formal. It is only in the last few years that mathematicians have come round to considering numbers to see that the "if p then q" of their formal systems can be applied on an immense scale to the interesting "if p then q" of the real world.

A form of education based on a predominantly pure view of mathematics encourages children to be conceptually gymnastic, but only within the special conventions of precise, artificial, unmessy systems. What we need is to encourage children to be conceptually gymnastic on questions involving the real world; and this is what the movement towards the use of projective applications in mathematics education sets out to do.

The brain drain, that neat expression which fuses the world of academe and the world of plumbing, has been with us for many a year. While it has many causes, the economic determinants would have a ready explanation for it in the steadily changing relationship between the pound and the dollar, and between their respective national economies. In the nineteenth century, when Britannia thought it ruled the waves, a pound was worth five dollars; for much of the post-1949 period, it wobbled between \$2.80 and \$2.40; and, after hiccupping upwards as a petro-currency in the late 1970s, it has slid further as oil prices have weakened and the "British disease" has worsened.

Given such a trend, our determinist friends would argue, a transatlantic drift of the more mobile and the more ambitious of British academics is easily explainable and all too predictable. Not only is there a push factor from those seeking to escape the death of a thousand cuts forecast by Sir Keith Joseph for British universities until the year 2000; but there is also a substantial pull factor, given the inordinate demand in the North American university system for talented academics, especially in the natural sciences. Who has not a tale to tell of a well-known chemistry or physics professor, and his entire team, being seduced westwards to Texas, or Ontario, or California? Even among arts and social science subjects, the drift is unmistakable and in all probability going to grow.

What follows are the purely personal (but not, I suspect, unusual) impressions of one who has drifted westwards. The first thing to emphasize, to friends who ask "What is it like at an American university?", is that there can be no normal or typical university in a country which boasts nearly 3,000 institutions of higher education. Between the intellectual power-houses of Harvard, Yale and Stanford on the one hand, and the obscure sub-branch of a state agricultural college on the other, there is a staggering divide. And located between the two extremes, there are all sorts of gradations, and pecking orders, and many a surprise to the recent visitor. I had not realized, for example, how high degrees awarded by the select four-year colleges (Smith, Amherst, Whittenton, Wesleyan) were regarded until I sat on a committee at Yale, deciding upon applicants to the graduate history programme.

But I also had not realized how swiftly certain universities and colleges could be dismissed. The British university system, where all 44 of them are regarded as equal educational institutions, at least in theory (and treated as equal by the practice of having external examiners to the BA, BSc and PhD), seems a long way away when one inhabits an Ivy League university possessing an acute, self-confident sense of its own ineffable superiority over the serried ranks below. After all, it will be said, how could one compare the history department at Binghamton College, New Mexico, to the Pulitzer Prize-studded department at Yale or the economics department at

The high plains drifters



South-East Louisiana Teachers Training College to that at Berkeley or Chicago, with Nobel Prize winners in every corridor (except when they are away on leave).

To answer the question "What is it like at an American university?" must depend, then, on one's landing place. For the past few years, thanks mainly to the post-Reagan election stock market boom, the rich and powerful American universities have been getting richer and more powerful (Yale's endowment, for example, has risen to \$1.2 billion, while Harvard's is over \$2 billion—fantastic sums in British eyes); but the income of some other institutions has shrunk, either in the face of grudgingly conservative legislatures or in consequence of declining enrolments. In a country as varied as this, no generalizations will be valid for every university. And the following few impressions are by someone who has landed in the "soft spot" of a major American university, and in a department proud of being (according to *Time* magazine listings) the best in the country.

The material aspects of possessing an endowed chair at such a university are not the most eye-opening features of the change. What one suspected, many years ago, are true: professorial salaries are double (in some fields, triple) those in Britain; teaching hours are less; administration is, with exceptions, much less; and research monies are larger and more easily obtainable. But did those facts surprise any of the readers of this page?

What I have found much more remarkable—and in such great con-

trast to the easy-going (lethargic?) British university scene—is the constant striving for recognition of excellence. Although many of the institutions would win at the analogy, leading American universities are rather like major-league baseball or football teams. Ratings count, almost more than anything else. Being placed Number One in English literature or mathematics (annual listings, however questionable, are always fastened upon) is awfully important—as those departments which have fallen out of the top ten in their field soon discover. Consequently, the resignation, that is, the seduction elsewhere, of a well-known professor is akin to the loss of a popular baseball striker; the movement of a Nobel Prize-winner from one university to another (though rare) is seen as a major seismic shift in intellectual and reputational terms. Newcastle United's acquisition, then, loss, of Kevin Keegan, was never so vital.

To more casual, cynical British eyes, this is America at its enthusiastic worst. But there are compensating factors (though, as before, I write only of the major institutions). The first is the staggering amount of money which universities are prepared to pump into successful departments or promising areas. In spring 1984, Yale had 30 full professors of history on its list, and it is by no means the largest department in that subject in the USA. What is more, success breeds success, in the classic American fashion—and each year newly endowed chairs, costing \$1.5m or more, are offered by rich alumni or other philanthropists. Averell Harriman's award of \$10m to enhance

Paul Kennedy looks at the transatlantic drift from a mid Atlantic perspective

Columbia University's Russian studies programme, or the spectacular gift of 52(!) new chairs in science to the University of Texas, were largesses so great that they inevitably made the leading newspapers; but hundreds, perhaps thousands, of smaller gifts are made each year.

Another obvious consequence of this major baseball league mentality is the attention given to the recruitment of new professors, especially at the senior level. Do we have a vacancy in macroeconomics, or in Austro-Hungarian history? Well, then, we must try to get the best person in the field. A world-wide search may not literally mean that, but it is impressive to see a search committee in action. Lists are drawn up of the leading scholars across the globe in that particular field. The gurus in the subject are confidentially approached and asked to rank the most promising candidates. If certain names begin to emerge, those people are flown in to give a lecture. Gentle soundings are begun. Much of this takes place even before the new post is publicly advertised; and, as cynics point out, those who only apply at that stage without having been informally told about the chair earlier are highly unlikely to be considered seriously. It is, in other words, an old boys network, though of a very sophisticated sort.

So, to guard against error and (conscious or unconscious) bias, some controls are built into the system at the centre. The curricula vitae of ethnic minority and women candidates have to be sent to a special person in the provost's office, and the search committee will have to explain (if no one in those groups was offered the post, or even shortlisted) why that was so. Secondly, even when the chosen candidate is interviewed by a meeting of all of the tenured professors, the department has to defend its selection before a senior appointments committee, specifically charged to ensure that Yale's (or Harvard's or Princeton's) high standards are being maintained. The entire process is therefore a very lengthy affair, lasting months, and sometimes an entire year. The British system, of interviewing the leading half-dozen applicants all on one day, and then deciding which person to appoint, seems simplicity itself; but is it, one wonders, as thorough?

My final impression is an unalloyed

gain, which is why I have left it until last. It is the high respect in which the humanities are held, both within and (in so many places) without the universities. This, I confess, rather surprised me. Was not the USA the model of aggressive laissez-faire capitalism, which Mrs Thatcher's government and others were seeking to imitate? Would there not be an overriding interest in subjects which were commercially profitable (biochemistry, computers, law, medicine, and management), and a corresponding down-grading of the less "relevant" and less "practical" disciplines? Now of course the sciences and professional subjects attract great support and command large resources. But I have been struck by the frequency with which university presidents, business leaders, newspaper columnists, even politicians, have insisted upon the value of humanistic education, upon having a sense of history, of literature, of other cultures and languages. And the money pouring into the universities for new chairs and research centres is, therefore, not only going to the "relevant" subjects but also to those with little obvious commercial spin-off.

Once again, this may be a tainted view. Yale in particular prides itself upon its liberal, cultured traditions and its current president, A. Bartlett Giamatti, is nationally known for his fluent advocacy of the benefits of a humanistic education. Its alumni, with their careers in law and merchant banking, are also highly cultured, with a tradition of giving generously to the arts, to libraries, to educational institutions. Such conditions are not likely to prevail in a small college in an inner city suburb, catering chiefly to part-time and mature students who want commercial qualifications.

Nevertheless, the support voiced for humanistic education across the country is remarkable, and seems if anything to be growing. In part, perhaps, it is due to a widespread unease among American élites about their country's future. Given its awesome international responsibilities, and military power, does it not need to be better educated about other countries and other cultures? Given the follies committed by recent administrations in overseas affairs, is there not some merit in having a better sense of history, of perspective? What has happened, I feel, is that this mood of unease is now rearing its head in the hearts of American philanthropy, to the advantage of the arts and social sciences as well as other areas of the university. Whatever its cause, the growth of opinion in favour of a more rounded education, with an emphasis upon the varieties of human experience over time and place, and upon the richness of human culture, is a welcome trend. But how long will it be before a British minister of education, or a vice-chancellor, comes out boldly in support of the humanities once again?

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NICCOLO MACHIAVELLI... a detail from the portrait by Santi di Tito

The Prince and the Bard

The International Shakespeare Conference begins this Sunday in Stratford upon Avon on the theme Shakespeare and history. Laurence Kitchin examines a neglected aspect of Shakespeare's historical perspective

WILLIAM SHAKESPEARE... the Felton portrait noted for its vast expanse of forehead



Given his indebtedness to Raphael Holinshed's *Chronicles of England, Scotland and Ireland*, not to mention the way he reflects the Tudor reworking of recent history, it is natural enough to concentrate on the specifically English aspects of Shakespeare's sources. From the point of view of literature, the Italian tradition was important to his formative years and plenty of scholarly attention has been given to that. But also in the sixteenth century there was an acute awareness of Italian history, largely because of political and religious attitudes crystallized in the papacy and marked by the emergence of Machiavelli as a diabolical anti-Christ (a process charted by the late Mario Prati in *Machiavelli in England*).

Of Shakespeare's forerunners, Christopher Marlowe was at Cambridge with Gabriel Harvey, a diligent student of the Italian political theorist. It is Machiavelli who gets *The Jew of Malta* airborne by delivering the prologue in person:

Albeit the world think Machiavel is dead
Yet was his soul but flown beyond the Alps,
And now the France is dead, is come from Guise
To view this land, and frolic with his friends.
To none perhaps my name is odious:
But such as love me, guard me from their tongues.
And let them know that I am Machiavel.

This melodramatic version of one of the founders—some would say the founder—of political science, was taken over by Shakespeare for *Richard III*:

I'll drown more sailors than the mermaid shall;
I'll slay more gazers than the basilisk;
I'll play the orator as well as Nestor;
Deceive more slyly than Ulysses could;
And, like a Sinon, take another Troy;
I can add colour to the chameleon;
Change shape with Proteus for advantages;
And set the murderous Machiavel to school.
Effective rhetoric and a cunning selection of examples from the classics, but naïve, a histrionic stereotype, at bottom frivolous. Probably Ben Jonson merits closer investigation from this point of view, but if a random quotation from his *Sejanus* is anything to go by, he too adopts the stereotype: *He that will thrive in state, he must neglect*

The hidden paths that truth and right respect;
And prove new, wilder ways: for virtue there is not the narrow thing; she is elsewhere.
Men's fortune there is virtue; men's fortune there is virtue;
They license, law; and their observance, skill.
Occasion is their foil; conscience,

their stain;
Profit their lustre; and what else is, vain.

Moralistic, and an advance on the "Machiavel", anti-Christ syndrome, what you might call phase one of the subject. Jonson seems to know that fortune and virtue are recurrent themes in *The Prince* but we are still with a generalized dismissiveness.

Shakespeare did not stop there. As he matures there is ample evidence of close acquaintance with Machiavelli's text. *The Prince* is not only political theory but also recorded history, notably where it concerns Cesare Borgia. We learn, for example, about one of Cesare's subordinates, Ramiro de Lorca. After the Romagna came under Borgia control, Ramiro was appointed its governor, entrusted with pacifying the province. This he achieved, by methods which caused a good deal of resentment. After Ramiro's unpopular mission was completed, it was time for better relations to be established.

Shakespeare shows a mature understanding of Machiavellian principle

Machiavelli reports that "because [Borgia] knew that the past severity had caused some hatred against himself... he desired to show that, if any cruelty had been practised, it had not originated with him, but in the natural sternness of the minister". So one morning Ramiro de Lorca's body was found in the piazza, according to some reports, bisected. This episode has something to tell us about the controversial role of the duke in *Measure for Measure*:

DUKE: ... so our decrees
Dead to infection, to themselves are dead;
And liberty plucks justice by the nose;
The baby beats the nurse, and quite athwart
Goes all decorum.

FRILIA: It rested in your grace
To unloose this tied-up justice
And in you more dreadful would have seemed
Than in Lord Angelo.

DUKE: I do fear, too dreadful:
Sith 'twas my fault to give the people scope,
'Twould be my tyranny to strike
And smother them.

For what I bid them do; for we bid this be done
When evil deeds have their permissive pass,
And not the punishment.
Therefore, indeed, my father,
I have on Angelo imposed the office.

Who may, in the ambush of my name, strike home;
And yet my nature never in the fight
To do a slander.
The political situations of the duke

and Cesare Borgia are different, but in this instance the tactics of the rulers concerned are exactly the same. We find another case of equivocal behaviour in *Henry IV Part Two* in the way the king's party suppress the rebellion in the north. There, the first two scenes of Act IV provide a most blatant example of applied Italian history which has not had the attention it deserves, probably because it does not involve Falstaff and comes before the episode in which Prince Hal tries on the crown for size.

The essential action concerns negotiation between the rebel leaders, Mowbray, Hastings and the Archbishop of York, and Westmoreland, followed by Lancaster, representing the king.

The sustained irony and ambiguous wordplay could be explained in detail. It is worthy of Machiavelli himself, and with dialogue added, First, Westmoreland, as the king's envoy, upbraids the rebels at length and promises redress for their grievances "wherein it shall appear that your demands are just"—words which are the key to what follows, and best thrown away rather than emphasized in the delivery. Whereupon, Mowbray answers that the offer "proceeds from policy, not love".

Of the three rebel leaders Mowbray is the only one who agrees to accept the offer without extreme reluctance. When they are alone again to discuss it, he remarks:

There is a thing within my bosom
Tells me
That no condition of our peace can stand.

When the Duke of Lancaster arrives with the king's army, it is Mowbray who has a presentiment of betrayal and makes brief interjections in a different tone from all the others. While healths are being drunk to celebrate agreement he says:

You wish me health in very happy season.

Both in *Henry IV* and *Measure for Measure*, then we find an informed knowledge of Machiavelli. When a *Times* sub-editor headlined an RSC notice of mine "Machbeth as a Borgia Party", he may not have been frivolous after all. A supposed falling off in the final acts of that play fails to give credit to the astonishing account of ruthless tyranny, anticipating later history in the persecution of exiles' relations and the caution imposed on dissenters by the palace informers. (See the scene at the end of Act III between Ross and a courtier.) In terms of Machiavelli, Scotland with its feuding thrones, resembles the city states which Cesare aimed to control. Machbeth is prone, like him, to moods of withdrawal and privacy. Like Cesare he has a contempt for women, acquired rather late in the case of his wife; indeed his graduation in realpolitik accompanies Lady Macbeth's relegation to the sidelines. Like Cesare he is good at motivating assassins, but there the resemblance ends. Machbeth chooses incompetents who let Banquo's son escape and instead of leaving a deputy like Ramiro de Lorca to clean up

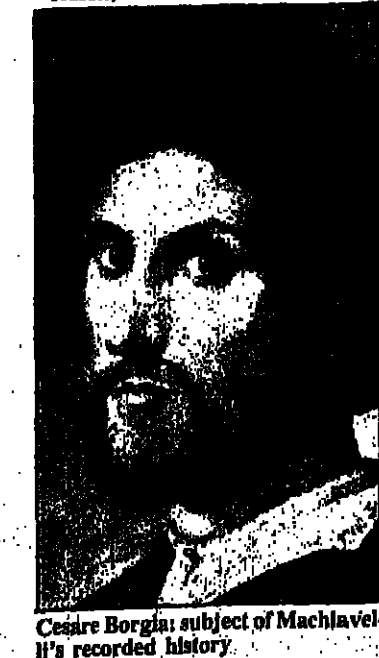
after his *coup d'état* he lets all the blame for the repression fall on himself.

Nevertheless, Machbeth has the right idea about Pleance, for Machiavelli insists that it is useless to kill Brutus unless you also kill the sons of Brutus. And this brings me to a final, and perhaps the most important phase of Shakespeare's indebtedness to Machiavelli. In phase one, as we have seen, he adopts the Tudor "Machiavel" stereotype, derived from Gentillet's *Contre Machiavel*, the polemical attack which was going the rounds in a Latin version. In phase two, episodes of Italian history relating to Borgia provide the Duke of Vienna's explanation of his conduct and Lancaster's manipulation of the rebels. But in what we may call phase three characters with an evident grasp of Machiavelli's principles become a major structural support of the plays, in conflict with characters who reflect Castiglione's ideal of the courtier.

At a diffused, generalized level, the obvious illustration would be *Hamlet*: on the one side Claudius, and on the other the prince, who echoes Castiglione's purple passage about the firmament and translates "discorso di ragione" into "discourse of reason". Some scholars have also enlisted *Much Ado*, where Benedick certainly agrees with Castiglione about wit in saying that his "will never harm a woman". A more precise example of the conflict is the climax of *Julius Caesar*, scarcely noticed amid all that is going on at the time. It comes when Cassius urges: "Let Antony and Caesar fall together!" is overruled by Brutus, adds: "Yet I fear him" in answer to the high-minded objections, and after the assassination resists giving Antony leave to speak. So Cassius duplicates Mowbray and Vitellozzo, spokesmen of well-founded reluctance. Antony, the equivalent here of a son of Machiavelli's earlier Brutus, is spared through the political ignorance of Shakespeare's Brutus, and all the subsequent action flows from that.

Towards the end of it, however, Octavius is already about to take over from Antony the role of cool manipulator, beginning with an accusation that Antony has misread the enemy's battle plans and going on to a far refusal to commend the wish first assigned him. The process is developed in *Antony and Cleopatra* in which Antony would have earned the contempt of Cesare Borgia by taking a woman seriously, and Octavius is a frigid realist. To be in the widest sense of the word humane like Brutus, or to experience heroic passion like Antony, is to be a loser. That is also the message of Machiavelli to the sixteenth century. Hamlet learns it during the course of the play, as Rosencrantz and Guildenstern, prominent in this part of his education, discover.

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Cesare Borgia, subject of Machiavelli's recorded history

Ray Cowell examines the question of quality control and whether the system can be improved

The recent introduction into the language of higher education of the industrial term, "quality control", is both welcome, as a sign of the willingness of some educationists to adopt relevant aspects of good industrial practice, and potentially dangerous, since like all general terms this one can be used either to obfuscate or clarify the issue to which it refers.

The issue of maintaining and monitoring standards has always been central to the educational process, but it has been of particular importance to public sector higher education since the establishment of the Council for National Academic Awards, with its commitment to ensuring broad comparability between university and non-university awards.

Recently the CNA has sought to move beyond that chartered responsibility by transferring some of the powers and responsibilities of quality control to the institutions themselves. These "partnerships in validation" (more recently "partnership in evaluation") developments have taken on greater urgency through the recent establishment of the committee of inquiry into validation procedures, under the chairmanship of Sir Norman Lindop, "to look at the key issues for the maintenance of the academic standards in the public sector, both those validated by the CNA and those validated by individual universities". Among the issues identified by the Secretary of State in a letter to Sir Norman of April 3, 1984, two are crucial: "The relationship between the assessment of a course as 'proper' and its validation in practice"; and "the respective responsibilities of the validating bodies and institutions in ensuring that the abilities of the students enrolled on a given course are consistent with its structure and content".

Keeping up the standards

The first of these issues questions whether the existing quality control systems actually determine academic quality at the level of teaching and learning, and the second whether public sector degree courses have taken sufficient account of changing student need, rather than, by implication, merely replicating traditional university practice.

To return to the nature of quality control as understood in industry, there it involves not just the establishment of a system but the day-to-day monitoring and improvement by the workforce as a whole of product quality. It may be that in higher education, a disproportionately large amount of time has been spent on the system—the theology of validation—and not enough on the educational realities of classroom, studio and laboratory practice. That is easily said, but how can we improve our present system so as to bridge the gap between validation and value; between rhetoric and reality?

Here the two specific issues mentioned above converge. The "realization in practice" of a course is the students' experience of the course. Any system of quality control which does not focus on that experience will inevitably be marginal. The question then becomes one of how the quality of this student reality can be defined and controlled?

The task is infinitely more complex and challenging than the peer group discussion of course proposals which forms the basis of existing validation procedures. Just quality control in industry depends on the individual vigilance and

understanding of the workforce, so in higher education the individual lecturers at all levels must be given an understanding of their place in the quality control process. At the moment, much of the standard methodology (and all of the rhetoric) of validation tends to have a mystifying, alienating, effect on the individual lecturer.

It follows that a more rigorous, more systematic and more inclusive method of validation must take the classroom experience of students and lecturers as its starting point. And if this is to happen, the lines of communication and responsibility must be simplified and strengthened. In other words, more responsibility for quality control must be devolved to those institutions whose educational track-record justifies it, so that they can ensure a full understanding of the process at the practitioner level.

My argument might, at this point, begin to sound like just another plea from polytechnic management for emancipation from external validation. Such pleas are normally distorted by throwing off restrictions that hinder new directions. As I see it, the main case for the devolution of quality control is that it will bring to the centre of the quality control process the actualities of education, the teaching-learning interchange.

Within the present system this dimension of education is too often buried beneath the public jargon of validation. A shift of responsibility to institutional level is desirable because it will build upon best current practice and because it will bring academic validation and educational

value closer together. Inter-institutional and inter-sectoral comparability remains an important, though difficult, ideal. This is where another issue raised by the Secretary of State's letter becomes important: "The ability of existing validation arrangements to respond effectively to new needs and developments both without as well as within the education service." The criteria on which comparability is to be established should be re-defined through a genuinely new kind of partnership, one that brings together the validators (staff) the consumers (students) and the market (employers). And comparability must not be confused with similarity; it should include diversity and change.

Such a partnership would ensure that quality control concerns itself with the capacities of the graduate, or more precisely, with the student, and between what the student does, as a student, and what he becomes, as a graduate. The central task of validation is to understand and strengthen the connexion between these two institutions within task best carried out by mature institutions reviews, a framework of periodic "institutional reviews", conducted by the partnership defined above.

In summary, the new emphasis on quality control in higher education should be given a critical welcome. Properly understood, it offers a new challenge to higher education and a new chance to demonstrate and prove its value to a wider public. The danger is that the concept of quality control could be assimilated into present practice, reduced to just another piece of fashionable jargon which justifies, through mystification, time-honoured routines.

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BOOKS

Release from sin

Cervantes and the Mystery of Lawlessness
by Alan K. Forcione
Princeton University Press, £32.40
ISBN 0 691 06588 8

In the prologue to his *Exemplary Novels* Cervantes likens them to a game of billiards, open to anyone who might care to play. And indeed, in these ostensibly edifying tales, Cervantes keeps provoking the reader into passing judgment while managing to avoid being pinned down himself. Little wonder then that he should later refer cryptically to a "hidden mystery" that "raises" these stories beyond mere didacticism or entertainment.

Alan K. Forcione tackles the two most intriguing novellas in the collection, *The Deceitful Marriage* and *The Colloquy of the Dogs*. As in his study of four other exemplary novels published in 1582, his basic thesis is that a spiritual optimism inherited from Erasmus distinguishes Cervantes from other major writers of the golden age, such as Mateo Alemán, Quevedo and Calderón, whose works are filled with an ascertained disgust at the sinfulness of man.

With the *Marriage* and the *Colloquy* the case for Erasmus is severely put to the test. There is little obvious uplift in the frame-tale about a syphilis soldier kicked out of his precious assets by the scheming harlot he married. *The Colloquy*, if anything, is even bleaker. The soldier overhears two dogs reviewing the manifold wickedness of human society, but their gift of speech immediately becomes an issue within the *Colloquy* itself: is it a miracle or simply a delusion? The answer may lie with the witch Calizares, who possesses secret knowledge drawn from her lawless commerce with Satan, the supreme fantasist, one who taught her how "to transform one thing into another" in the witch's to be believed, the fictive imagination is the quintessential instrument of the devil, hardly the medium through which to reform the Christian conscience in the spirit of Erasmus.

Forcione responds to the challenge by arguing that, although Cervantes confronts unflinchingly the full force of evil in the world, his Erasmusian optimism shows through in the way the actual structure of the twinned novellas offers the reader a promise of release from the grip of sin. With his usual insight and erudition, Forcione analyses in detail the satirical patterns of narrative disorder that figure forth a succession of "demonic worlds", leading to a central epiphany of evil in the episode with the witch. Then he turns to the countervailing Erasmusian features; for example, he interprets the *Marriage* as a miracle of regeneration, he also sees an anticipation of redemption in the narrative acceleration of the *Colloquy* towards daybreak after the Calizares episode, and the dialogue form itself is considered to be a liberating force.

Forcione's reading of the novellas is original and often brilliant yet there remains an overwhelming impression of gloom which the positive features do not quite manage to dispel. But Cervantes's comic imagination can often, as in *Don Quixote*, lighten the blackest moments of satire. There is, after all, something touchingly comic even about Calizares, that monster of evil, who nearly kills Berganza with kindness when she insists, much to the poor dog's embarrassment, that he is none other than the long lost son of a dear friend of hers.

It is perhaps the unpredictable play of Cervantes's wit that attests most vividly to his intrinsic optimism. Still, the combination of moral seriousness and comic vitality necessary to make it difficult to unravel the sense of Cervantes's fiction, Professor Forcione has written a stimulating and important book which offers us, thanks to his remarkable range of reading and his critical intelligence, a new approach to the mystery of Cervantes's trickiest novellas.

Edwin Williamson

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Design by Inigo Jones for Henrietta Maria in Ben Jonson's masque *Chloridia*.

Comedy is a serious business

The Decameron
by Giovanni Boccaccio
translated by Mark Musa and Peter Bondanella
Norton, £24.50
ISBN 0 393 01754 0
Decameron: a selection
edited with introduction, notes and glossary by Kathleen Speight
Manchester University Press, £5.50
ISBN 0 7190 0934 2

People who care about such things devote a share of their energies to defending Machiavelli against the charge of Machiavellism; similarly, it is often felt necessary to show how much more there is to Boccaccio than the lewd stories for which his name is a by-word. "Boccaccio . . . is a serious author," as James Fenton has plausibly put it. Or, as Kathleen Speight writes in the introduction to her new selection, "Boccaccio has a definite moralistic of his own" in which the deadly sins would seem to be hypocrisy, greed and avarice. And yet (to quote the same introduction), "Boccaccio is no moralist: there is no didactic interest in his work; he does not intend to teach anybody anything; his chief aim is to entertain, while presenting life as he sees it."

One reason for reading Boccaccio here and now is that his insights into human behaviour have lost little of their relevance during the dramatic scene-changes between mid-fourteenth-century Tuscan and the Anglo-Saxon world of today. His attitudes to religion and to women are acid-tests of this; while his own piety is above doubt, he is empirically intolerant of religious excesses and dubious practices not based on reason and experience; and of women he has a remarkably sympathetic view given the rather misogynistic age in which he lived. He appears to presuppose an ideal of as much sexual equality as was compatible with the structure of contemporary society, and explicitly recognizes the disadvantageous position occupied by women within that structure.

But another of Boccaccio's faces ("his chief aim is to entertain") is just as important: he was, after all, one of the most brilliant comic writers of all time. Comedy is a serious business, and for Boccaccio this had a theoretical as well as a practical dimension. In as much as entertainment was recognized both by medieval physicians and by Boccaccio himself as having medical significance. In a well-known passage of his *Genealogia deorum gentilium*, Boccaccio asserts the power of fiction to restore "the strengths and spirits" of men "worn out in the strain of serious crises", and implies that even works written merely for the reader's pleasure (as opposed to his profit), such as those of Virgil, Homer, Plautus and Terence, have much of value to teach

Making a song and dance

The Court Masque
edited by David Lindley
Manchester University Press, £22.50
ISBN 0 7190 0961 8

The court masque grew rapidly to maturity, flourished, and burnt itself out during the first four decades of the seventeenth century. It is a complex form that draws upon the arts of literature, music, dance, and scenic spectacle, and was deeply involved with national and international politics. Ben Jonson was only the greatest of many poets who contributed to its main stream of development.

Little masque music has survived, we can have only a hypothetical impression of the dances, and though many splendid designs by Inigo Jones are preserved, and while too the political significance of the masques stimulated some wonderfully illuminating descriptions of them in the

communications of foreign diplomats, nevertheless the totality of these experiences remains elusive. Modern scholarship acknowledges a need to attempt a reconstruction of the event, an experience in which the poet's contribution, while it may have exerted a shaping influence, is in itself far less adequate as a record of a play. But literary texts remain obstinately more susceptible to analysis than transient court entertainments of the distant past, which perhaps helps to explain why four of the ten essays in this sophisticated and learned volume concern themselves with works that either flout or "show" the masque, or that lie outside the main tradition.

Thomas Nashe's "show", *Summers Last Will and Testament*, of 1592, is *sui generis*, binding together elements from many different modes; its principal affinity with the later masques lies in its inextricable entanglement with the occasion for which it was composed. Elizabeth Cook properly emphasizes the confrontation within it of "two levels of existence" - the historically realistic and the mythological, which come together most movingly in the song "Adieu, farewell earth's bliss".

David Lindley's essay "Music, masque, and meaning in *The Tempest*"

anyone who reads them in the right frame of mind. In recent years it has become respectable to view Boccaccio as a comic writer first and foremost.

If comedy and wisdom are the two of the attractions of the *Decameron* for today's reader, Boccaccio's consummate artistry is surely a third. His language and style, broadly speaking, reflect two main models: the learned, Latinizing manner of literary prose (particularly at the non-comic moments in his book), and Tuscan popular speech, for which he has an acute ear. Boccaccio is outstanding for the ease with which his language, always conveying the vigour of everyday life, adapts itself to the many facets of his tragic, parabolic, lyrical, philosophical, comic, farcical or anecdotal. But despite this multifariousness his narratives proceed with absolute linearity, economy and control.

Kathleen Speight's admirable volume provides 20 of the 100 tales, together with the author's preface, introduction and end-piece, with a wealth of explanatory matter of various kinds designed as an initiation into the study of Boccaccio for the student of Italian literature, though not without an eye to its utility for the general reader with a fair knowledge of Italian. She writes that "the aim has been to include as far as possible the best-known tales and at the same time to illustrate the great variety of kinds of story, of people and of places in this 'human comedy'." While the choice is perfectly sound, the resulting anthology

John C. Barnes

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Thirty years on

The New Pelican Guide to English Literature: a guide for readers
edited by Boris Ford
Penguin, £2.95
ISBN 0 14025307 7

The seven-volume Pelican Guide to English Literature began to appear in 1954. A happy hour for academic criticism, the mid-fifties, and the very heyday in Anglo-America for the prestige of the critical essay. The synoptic style of George Saintsbury and Oliver Elton, thought dead and buried; the age of existentialist anxiety - have I defined my criteria, or earned the right to imagine that it is even possible to read a poem or a novel? still blissfully distant. Critics ruled: not just literature, but a good deal of the intellectual life of academe as well. It may be hard to recapture that spirit now. For though the 'general standard of critical writing nowadays' is as high as then ever before, especially in the great London literary world, the critical essay is somehow not expected to strike fire as once it did. Nostalgia, then, to be plunged back in memory with this new bibliographical appendix by some thirty years, when criticism enjoyed the sort of prestige that sociology had in the sixties or theoretical linguistics in the seventies.

The first and unrevised *Pelican Guide* seemed that happy moment and profited from it, to say prodigiously in its day and revise it later as the *New Guide*. It might, had it been undertaken twenty years later, have been a better book, but it is certain to have been a less successful one. As it was, it made a familiar handbook of itself, especially for essay-writing in sixth forms and the freshman year. Always a little cavalier in its editorial direction, with a few great international names like Lionel Trilling scattered into native, mainly Cambridge or Cambridge-trained regiment of contributors, it benefited the book trade even when it teased and baffled the young.

And now for something new, or nearly so. The factual appendices to each volume have been collected into a sensibly priced paperback: background reading and reference, period by period, followed by brief biographical and bibliographical data on individual authors from Chaucer to the present day. Each of the eight periods has been compiled by a contributor: Barry Windatt for Chaucer and the alliterative tradition, Rosemary Morris for the European Middle Ages, Brian Vickers for the age of Shakespeare, Maurice Huxley for Donne-to-Marvell, C. J. Horne for Dryden-to-Johnson, Hilda Spear for Blake-to-Byron, Norman Vance for Dickens-to-Hardy, and Joan Hollaway for two sections on the modern age. Each section, we are assured by the editor, will continue to appear in individual volumes of the *New Guide*, and will be kept up to date without discrepancy, as he hopes, in successive

justifies its place in the volume by its subtle and perceptive examination of the play's concern with "the fundamentally rhetorical nature of the masque", with moral purposes that may inform it, and with "the nature and limitations of its beholders". Milton's "Masque presented at Ludlow Castle, 1634", usually referred to as *Comus*, is far more coherent as a literary text than most other masques, one that "hovers between the opposed modes of masque and drama". John Crasner, in an admirably rigorous piece of historical reinvestigation, corrects the view that the dignity and professionalism of the occasion of its performance failed to match the quality of the text. Paul Hammond's "Dryden's *Albion and Albanius*: The Apotheosis of Charles II" discusses how Dryden, writing after the civil war, cast features of the masque into a different form which "has an altered, more polemical, relationship with its audience".

Three other essays consider general aspects of the court masque. Helen Cooper ranges widely in her discussion of location, drawing some interesting distinctions in the degrees of involvement of various monarchs in the entertainments with which they were regaled. David Norbrook, in "The reformation of the masque", demonstrates that "there was no inherent incompatibility between Puritan sympathies and an interest in masques". And John Peacock increases understanding of the origins of Inigo Jones's masque designs in an original and appositely illustrated discussion of Jones's French sources.

The three remaining essays discuss court masques in the main tradition. John Pitcher vividly re-creates the historical circumstances of Daniel's *Tethys' Festival* and ingeniously explicates its recalcitrant significance. Sam Pearl defends Jonson's masques of 1620-25 relating them to "the specific issues of royal policy to which each masque is a response", and Jennifer Chibnall, in an essay which touches on some fundamental critical issues, insists that Caroline masques should be considered not merely as vehicles for a political ideology, but as more complex structures whose form, with its emphasis on the process of transformation, reflects "the precariousness of the political situation".

The *Court Masque* initiates a "companion library" to the Revels Plays. It is not, as the blurb suggests, a "comprehensive introduction" for students to the masque form. Such a work would need to say much more about Jonson's major masques. But it is a collection of essays impressive in both historical scholarship and critical acuity which measures up to the high standards of the parent series.

Stanley Wells

Stanley Wells is senior research fellow at Balliol College Oxford, and general editor of the Oxford Shakespeare.

BOOKS

Early days

Earth's Earliest Biosphere: its origin and evolution
edited by J. William Schopf
Princeton University Press,
\$84.80 and £30.20
ISBN 0 691 08323 1 and 0 2375 1

All fundamental evolutionary innovations occurred in Precambrian times. Even the evolution of man from worms can be seen as little more than the gradual elaboration of a basic level of organization that originated about 700 million years ago, towards the end of the Precambrian eon.

Precambrian times begin with the newly accreted Earth about 4,500 million years ago and end with the origin of skeletons invertebrates about 580 million years ago. This period saw the chemical evolution of the planet; the origin of life, cells and the genetic code; the development of different metabolic pathways and the exploitation of different energy sources, culminating in bacterial and oxygen-liberating photosynthesis; the origin of the eukaryotic cell, due at least in part to symbioses between prokaryotes and/or proto-eukaryotes; the beginnings of motility and sex; and a gradual structural elaboration from unicells, through aggregations and filaments, to truly colonial microorganisms, and from these to metaplates and metazoans.

It seems that life probably originated soon after the accretion of the Earth and well before the oldest known sedimentary rocks were deposited, so there is now little hope of finding a prebiotic signature in an ancient sediment. It is also generally accepted that the structure of the simplest fossil microorganisms gives little indication of their metabolism, internal organization and life cycle. For these reasons there has been an increased interest in organic and isotope geochemistry because they now have the potential to indicate the source of sedimentary materials and the kinds of biological and geological cycles they have passed through.

This book, the final report of the Precambrian Paleobiology Research Group - brought together by J. W. Schopf to investigate the origin and early evolution of the Earth's biosphere - marks a watershed in the field, as it emphasizes the chemical evolution of the early Earth, how this might have been affected by the development of the biosphere, and which aspects of biochemical evolution might be reflected in ancient sediments. The most important global change has been that from an initial atmosphere with

little free oxygen to one with a significant amount (say 10 per cent of present levels) produced by photosynthesis. No one knows when this transition took place, or how quickly it occurred, but one indication of the pace of development is that, although many textbooks are still stating that it was complete by 600 million years ago, the current best estimate in this volume is by 1,600 million years ago, and probably considerably earlier.

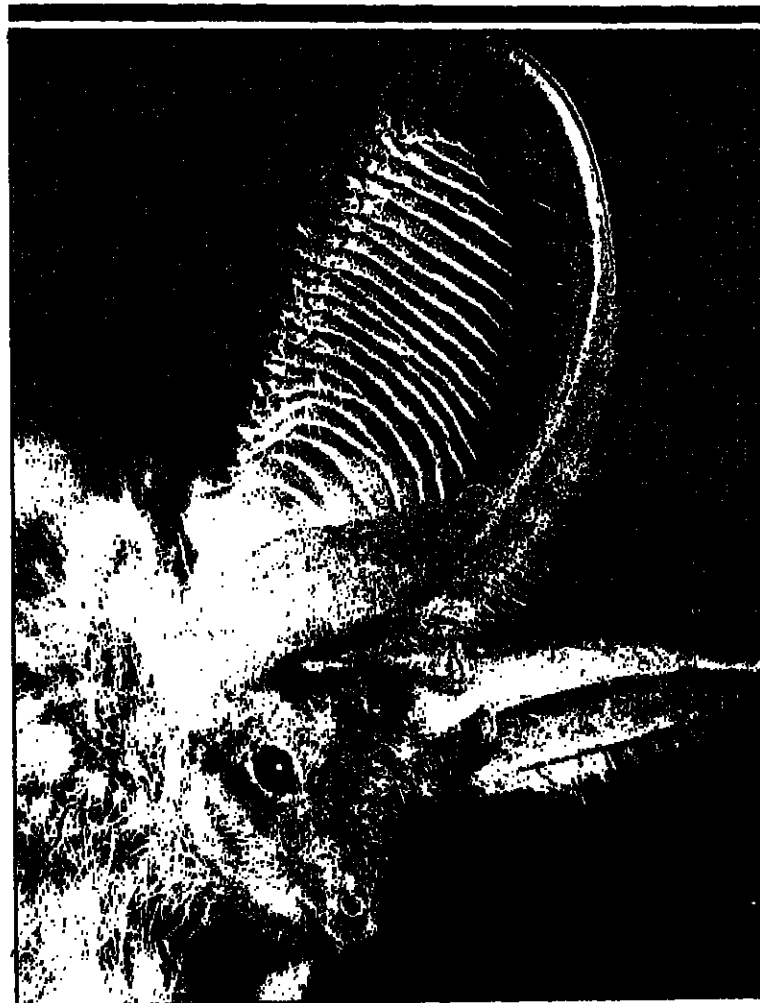
Although each of the 15 chapters could stand on its own as a research paper, the book is well integrated and cross-referenced. To my mind, its core consists of the five chapters on the paleontology and organic and isotope geochemistry of the samples studied by the group - all sound critical reviews which also contain important new observations and interpretations. The tabulated reviews and updated interpretations of Archean and Early Proterozoic supposed microfossils are particularly useful, because they list all reports with relevant references and stratigraphic information as well as new observations. The rest of the contributions range from reviews concerned with setting the scene to very speculative conjectures and interpretations that are at least consistent

with the hard data presented. Many contain significant new ideas or at least set old ones in a new context.

The only book in this field, this is the most comprehensive general study yet made, and will be the definitive work on the subject for the next ten years. However, there is still too little hard information available to make an informed choice between different plausible scenarios. It is also important to remember that fossil microorganisms are very small and that completely different microbiotas can be found very close together - for example, in successive laminae less than a millimetre thick. The microfossils described were all found in single samples from various collections: there is little discussion of different preservation forms and nothing on local special variation in assemblages. Also, as the field is beset by problems of classification, nomenclature and taxonomic assignment, an introduction to these topics would have been useful.

C. J. Peat

C. J. Peat is Guy Newton junior research fellow in biology at Wolfson College, Oxford.



Brown long-eared bat. From Wilfred Schober's *The Lives of Bats*, published by Croom Helm at £13.95.

Core physics

Electricity and Magnetism
by E. R. Dobbs
Routledge & Kegan Paul, £9.95
ISBN 0 7102 0157 5

The aim of the Student Physics series is to cover core topics of undergraduate physics in a set of short, clear texts, and to provide a sound foundation for subsequent development within a full degree course. It is an admirable objective; but, to be successful, the writers must have an intimate understanding not only of the physics to which they are teaching but also of the knowledge that their readers will be bringing with them from school. The former is easy for the university teacher; the latter much harder: university teachers are of a previous generation, they usually know little of what is happening in schools, and they are often out of date as regards the structure and conventions by which their own subjects are taught.

In *Electricity and Magnetism* Professor Dobbs sets out to establish the foundations for undergraduate courses that would generally bear the title "Electromagnetism" - an essential component of undergraduate physics, as it provides the subject in its fundamental way as do Newton's laws

and elementary mechanics. In 109 pages, Dobbs first discusses static electric and magnetic fields, then time-varying fields, and finally Maxwell's equations. Although there is no development or application of Maxwell's equations (nor even any elementary exercises on them in the collection of problems at the end of the book), this is a sensible place to break development of the subject, as the Maxwell equations may be seen as a focal point to which more basic electromagnetism leads and from which subsequent development diverges. Another volume is promised to continue the story, and I presume that it will also contain alternating current theory, which is surprisingly omitted from this text.

This book illustrates the difficulties of making the transition from school to university. About one-third of the text could be said to repeat material which is to be found in most Advanced Level syllabuses. For example, the first 47 pages deal with electrostatics; vector notation is introduced from the start, but no essentially new physics appears until page 22, when the dielectric properties of materials are discussed. However, if we are seeking to lay sound foundations, it is necessary to go back and spell out the simplest ideas precisely. I think Dobbs has it about right; and within the limitations of a concise exposition, the book is clear and easy to read.

On the negative side, I was sorry to find Professor Dobbs using the term "dielectric constant" in preference to "relative permittivity". The latter has

been the standard SI term for many years - it is consequently specified in the national core syllabus for Advanced Level physics - and students arriving from school will probably never even have heard of the former. Again, to say that the force on a current in a magnetic field is an "important extension" of the Lorentz force law is to invert the modern structure according to which the force between currents is fundamental (providing the definition of the amp) and charge is the derived quantity. Similarly, school syllabuses all emphasize that physical quantities must be dimensionally homogeneous, so that modern undergraduates should be able to find a professor writing dimensionally incorrect equations by substituting numbers for some quantities in physical expressions.

There are some other errors. For example, the electrostatic field inside a metal is *not* zero because there is no net charge density in a metal; and the explanation of the temperature-independence of Pauli spin paramagnetism is quite wrong.

In all, however, there are not too many black marks, and I find the book is reasonably successful in establishing foundations and in giving its place as a useful elementary text.

C. J. Adkins

C. J. Adkins is university lecturer in physics at the Cavendish Laboratory, Cambridge.

Selfish plants

Mate Choice in Plants: tactics, mechanisms, and consequences
by Mary F. Willson and Nancy Burley
Princeton University Press,
£32.30 and £8.90
ISBN 0 691 08333 9 and 08334 7

Sociobiology has proved to be so popular that perhaps we should not be surprised to find its sphere of influence extending into distant corners of the life sciences. At first sight, however, it does stretch credulity to find it applied to the sexual cycle of plants. Can we really accept that plants have social behaviour - that female plants (or parts of plants) discriminate between potential mates just as female animals pick and choose among the males available to them? But this is exactly the thesis that Mary Willson and Nancy Burley put forward.

Their argument is based on the notion that, during sexual reproduction in plants, female reproductive success is limited more by lack of resources for seed production (such as mineral nutrients and water) than by lack of suitable pollen carrying the male gametes. This notion is not idle speculation; indeed, the authors marshal a convincing body of evidence in its support. Consequently, pollen is often present in excess amounts and females are in a position to exert some choice over which males they allow to fertilize their gametes, without adversely affecting their production of offspring. Pollen grains then find themselves in competition for a limited supply of female gametes, in the absence of which they can make no contribution to the next generation. The ensuing interactions in which females choose males and males compete for females constitute analogues of social behaviour in animals to which sociobiological techniques can justifiably be applied.

How much light a sociobiological analysis sheds on sexual reproduction in plants I am not sure. For example, at

the heart of the sexual cycle of flowering plants lies the mysterious process of double fertilization, involving not only the fertilization of the female gamete but also the fertilization of another cell by a second pollen nucleus. This latter cell becomes the nurse tissue (or endosperm) of the developing embryo, providing it with resources for growth. As the reason why the endosperm should have this strange genetic system has never been satisfactorily resolved, it is clearly an attractive subject for sociobiological analysis. Essentially, such an analysis considers the evolution of genes controlling social behaviour to be a function of the genetic relatedness of the interacting individuals. In the context of Willson and Burley's book, this analysis becomes a study of the evolution of resource-acquiring activities of the endosperm on behalf of its embryo (the endosperm's own "social behaviour") - given the genetic system of the endosperm.

The dilemma is that evolution of the endosperm's "social behaviour" is not our main concern; rather, it is the evolution of its strange genetic system. To draw an analogy, sociobiology tells us that the haplo-diploid genetic system of certain insects allows the evolution of a particular kind of altruistic social behaviour, but it does not tell us how the genetic system itself evolved. Clearly, as the problems of interest in plant biology can be quite different from those in the social behaviour of animals, they may well be resistant to sociobiological analysis. The book does have a few strengths, in particular the citation of a wide range of botanical literature - rich in observational detail but weak in underlying theory. At best, the book should stimulate a blend of critical experimental and theoretical work that might generate a new understanding of the sexual cycle of plants. At worst, it heralds a flood of sociobiological speculation of a kind that would leave us little the wiser.

Richard Law

Richard Law is a lecturer in the department of biology at the University of York.

Power sources

Modern Batteries: an introduction to electrochemical power sources
by C. Vincent, with Franco Bonino, Mario Lazzari and Bruno Scrosati
Edward Arnold, £14.50
ISBN 0 7131 3469 0

Modern batteries range from the well-known lead-acid cell first introduced by Planté in 1859 to prototype solid-state cells incorporating polymeric electrolytes. In this useful introduction to the science and technology of battery systems, the authors describe and characterize most of the established and emerging primary and secondary (that is, rechargeable) systems which are of current commercial and scientific interest.

New batteries that have been successfully manufactured have usually been designed in response to requirements by a specific market sector - for example, button cells for calculators, miniature solid-state batteries for space-makers, thermal batteries for defence applications, and nickel-hydrogen cells for communication satellites. Although chemists continue to promote new electrochemical systems for maintaining balanced load levels in electric power stations and for powering electric vehicles, there is still insufficient realization that such factors as economics or materials selection are more likely to determine whether a particular electrochemical system can be developed into an engineered product.

After a brief survey of the types and applications of battery systems, the authors provide a summary of the electrochemical background required for understanding operation of the various cells described in subsequent chapters: primary and secondary aqueous electrolyte cells, ambient temperature lithium-liquid electrolyte cells, high-temperature cells, solid-state cells, and secondary hybrid cells. These descriptive chapters, which could be read without difficulty by a non-specialist with some basic knowledge of chemistry and physics, fully

justify the authors' claim to provide an introductory text for those who wish to understand something about the construction and the factors influencing the performance of the various batteries currently available. As the book was completed in 1982, most of the technological information is up to date.

My main criticism with the contents concerns the chapter providing the relevant theoretical background. Written from a classical electrochemical viewpoint, it ignores those aspects of defect solid-state chemistry which are involved in many electrode reactions. Moreover, it would not be immediately apparent to the novice why electrochemical systems exhibiting very high theoretical energy densities often cannot be incorporated into commercial batteries because of problems in selecting engineering materials that are compatible with the severe oxidizing and reducing conditions imposed by the active electrode components. Conversely, most of the recent developments in battery technology have been associated with improvements in relevant materials technology, such as the introduction of very porous glass-fibre separators in sealed recombination maintenance-free lead-acid batteries; whereas electrochemical advances in this area have been minimal.

They might also have provided a little more discussion about the problems encountered in the commercial realization of new battery systems. For example, it is almost twenty years since the first announcement of the high-temperature sodium-sulphur battery and it is still not yet apparent whether large-scale production will be commercially viable.

Despite these minor quibbles, however, I can recommend the book as a useful introduction to the fascinating area of battery technology.

B. C. H. Steele

science at Imperial College, London

A further collection of essays and reviews by Martin Gardner has been published as *Order and Surprise* by Oxford University Press at £6.95; and a further collection by Lewis Thomas is available from the same publisher as *Late Night Thoughts* at £9.95.

Chairs

Dr John C. Holmes has been appointed to the chair of crop production at the University of Edinburgh in succession to Professor G. M. Milhoun.

Dr Daniel Quillen, professor of mathematics at the Massachusetts Institute of Technology, has been elected to the Waynflete professorship of pure mathematics at the University of Oxford.

Dr John House, a lecturer in the Courtauld Institute, London University, has been elected to the Slade professorship in fine art at Oxford for the academic year 1985/87.

Dr Stewart Hodges has been appointed to the Emme Fairbairn chair of financial management at the University of Warwick. Dr Hodges is currently Emme Fairbairn senior research fellow in investment at the London Business School.

Dr Brian Moores has been appointed professor of management in the department of business administration and accountancy at UWIST. An expert in operational research techniques, Dr Moores is currently at the University of Manchester Institute of Science and Technology.

Honorary degrees

Loughborough

Dr Sir Edward Parkes, vice-chancellor of the University of Leeds; Mr N. K. Chinn, member of Hong Kong Legislative Assembly and secretary for land and works; and Mr J. H. Roberts, FRSE, technical director, General Electric Company, will be awarded honorary degrees by Loughborough University.

Dr Sir Hon Lord Trend of Greenwich, the University Visitor and lately Rector of Lincoln College, Oxford, will be awarded a CBE, principal of the University of York, Professor G. W. G. Wickham, professor of drama in the University of Bristol.

Awards

The Royal Society has announced the award of Royal Medals to Professor A. R. Battersby FRSE, professor of organic chemistry in the University of Cambridge, in recognition of his work on biosynthesis of complex natural products; to Dr Mary F. Lyon FRSE, member of the scientific staff of the Medical Research Council, for her work on x-chromosome inactivation; to Professor A. L. Cullen, OBE FRSE, professor of chemical engineering in the University of London, in recognition of his contribution to microwave engineering.

Professor I. B. Thompson, head of the department of Geography in the University of Glasgow, was awarded a Chevalier dans l'Ordre des Palmes Academiques for services to French education and culture in the French province of the Baillie Duff honours list.

Dr Mc Scott of the school of materials science at Bath University has been awarded the CBE for his work on x-ray analysis.

Events

The international seminar on development and scientific and technological research effectiveness is to take place in Rio de Janeiro on January 15-18, 1985. For full information contact the Instituto Universitário de Pesquisas do Rio de Janeiro, Rua de Matriz, 82-22260 Rio de Janeiro, Brazil.

"The artists British still ignores?" is the provocative title of a three-day conference for ethnic artists and arts administrators, to be held at Huddersfield Polytechnic from September 7-9. Full details from Amanda Haney on 0484 22133.

A conference on Renaissance mathematics, sponsored by the British Society for the History of Mathematics and the Open University, will be held at Keele College, Oxford from September 27-30. For full details and registration, contact Cynthia Hay at the OU, Milton Keynes, MK7 6AA or on 0908 74066.

The Thames Valley branch of the Institute of Training and Development together with the Thames Valley Training Association are holding their annual conference and exhibition on September 25 at the Holiday Inn, Langley, Slough, Berks. This year's theme is "Distance learning and the trainer". Full details from Arthur Pemberton on 0753 889884.

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Open University viewing

Saturday August 18

08.00 Genetics. Heavy metal tolerance (S299; prog 1333; prog 13).

08.30 Failure of stressed materials. Something in the air (T333; prog 13).

09.00 Engineering Product Design. Testing time for a motor (T332; prog 4).

09.30 The Handicapped Person in the Community. Learning together (T331; prog 6).

10.00 An Aging Population. Home from Home (T332; prog 7).

10.30 Ecology. Indicators species - Ribwort and air (T333; prog 13).

11.00 Materials Processing. Making light work of it (T333; prog 13).

11.30 Nuclear Reactions. Random supplies (M331; prog 13).

12.00 Art in Italy 1400-1500. Titian, three paintings (T333; prog 13).

12.30 Education for Adults. If you can't read and write - the advancement of literacy (T333; prog 13).

13.00 Air Foundation Course. Words and pictures: the art of Charlotte Brontë (A101; prog 26).

13.30 Materials Processing. Making light work of it (T333; prog 13).

NOTICE BOARD

Grants

IULI

Dr S. B. Palmer, £4,880 from UKAEA (PIE effects in piezoelectric transducers); Dr R. J. Dewhurst and Dr S. B. Palmer, £4,440 from UKAEA (Laser-ultrasonic techniques for detection of small flaws); Professor G. W. Gray, £3,745 from SERC (Langmuir-Blodgett and related organic films for opto-electronic synthesis of organic materials); Professor G. W. Gray, Dr D. Lacey and Dr K. J. Toyn, £93,303 from SERC (opto-electronic memory synthesis of liquid crystal polymer materials); Dr P. G. Francis, £2,000 from SERC (gas flow calorimetry); Dr A. R. Mitchell, £19,780 from SERC (economic development of South Korea); Dr J. G. Troble, £1,052 from SERC (arbitration in British coal industry 1890 to 1914); Dr J. I. Sewell, £36,489 from undisclosed source (wicked-capacitor analysis software); Dr D. J. Boulton, £8,723 from Humberside Fertilisers plc (effects of fertilizer regimes on development of grassland); Dr K. A. Flowers and Dr M. R. Sheridan, £10,690 from MRC (motor control in Parkinson's disease); Dr D. Barmann, £9,537 from Post Office (prototype keyboards for overseas mail coding desks); Dr A. B. Rostrom, £9,000 from DTI (five computer-controlled bugles for handicapped); Dr P. G. Foster, £533 from Nuffield Foundation (contributions to anthropology by Scottish missionaries in Northern Malawi); Professor I. M. Donaldson, £5,500 from SERC (visual system and eye movement of amphibia and fish).

HERIOT-WATT Mr A. Griffith, Mr P. G. Cheesman and Professor V. B. Torrione, £4,000 from SERC (design rationalization and its effect on buildability and productivity in construction industry); Professor D. Phillips of the Royal Institution and Dr Ian Soutar, £27,150 from SERC (polymer photophysical and relaxation phenomena); Dr Philip John with Dr

P. A. Hackett of the National Research Council, Canada, BFR52,000 from NATO Scientific Affairs Division (laser induced fluorescence and ionization of diatomic silicon species); Professor R. J. Knops, Professor J. M. Ball and Dr P. G. Knowles, £12,198 from DTI National Engineering Laboratory (boiling outside tube bundles); Mr G. C. Hartup, £10,000 from BP International Ltd (model basin tests on marine plants); Dr A. F. Fell, £17,980 from SERC (pharmaceuticals UK Division (novel antibiotics in paediatric medicine); Dr A. F. Fell, £13,981 from Hewlett-Packard Ltd (novel computer-aided methods in diode array detection of High Performance Liquid Chromatography); Dr A. F. Fell, £20,100 from LKB Produkter (rapid scanning detection in regular and micro bore high performance liquid chromatography); Dr B. S. Wherrett, Dr H. A. Mackenzie and Professor S. D. Smith, £83,588 from Ministry of Defence (optical bistability in semiconductor devices); Professor S. D. Smith, £2,000 from Barr and Stroud Ltd (infra-red fibres); Dr K. D. Stephen, £20,000 from Engineering Industry Training Board (improving competitiveness in engineering).

KENT Dr I. G. Proud and Professor K. A. Stacey, £37,445 from MRC (regulation of activity of eukaryotic protein synthesis initiation factor eIF-2); Dr D. Zancani, £1,551 from Nuffield Foundation (seventeenth century laws and statistics of Pizarro); Dr J. Freedman, £15,000 from Nuffield Foundation (control of expression of protein disulphide-isomerase activity in lymphoid cells); Dr J. A. M. McDonald and Dr R. F. Flavell, £13,300 from SERC (extracellular material and space shuttle retrieval studies); Dr D. D. Dors, £1,500 from SERC (small angle x-ray scattering by microemulsions); Dr J. A. M. McDonald, £2,529 from SERC (observations at

UKIRT U/F52 infra-red photometry of the dust in Comet P/Commelin); Mr J. Mansell, £4,160 from SE Thames regional health authority (training in mental handicap).

LANCASTER Professor T. A. Mansfield, £47,800 from NERC (acidic deposition on plants and soils); Professor T. A. Mansfield, £21,000 from EEC (selection of plants with different degrees of resistance to phytotoxicity of SO₂ and NO₂); Dr A. R. Welburn, £12,500 from EEC (changes in internal levels of anions and pH within plants following acid deposition); Dr D. J. Hourston, £28,750 from Dowty Seals Ltd (new sealing compounds); Mr M. Anson, in association with Dr D. E. Aston, research scientist of Wales, £40,000 from SERC and British Concrete Pumping Association (concrete pumping: contrast between UK and German practices); Professor M. J. French, £16,364 from UKAEA (reactionless wave energy converter buoy); Dr J. K. Hargreaves, £53,039 from SERC (disturbed high latitude D region using EISCAT ionometer network); Dr M. Harrison, £25,400 from Department of Trade and Industry, Warren Springs Laboratory (oxides of nitrogen and related gaseous pollutants); Dr A. L. Belier, £14,000 from Nuffield Foundation (intellectual control of state intervention in poor relief in early modern England); Professor A. B. Clegg and Dr F. Foster, £98,000 and £131,808 from SERC (elementary particle physics); Dr B. K. Jones, £8,050 from English Electric Valve Co (design and construction of prototype LCD tester); Dr H. M. Pollock, £5,000 from Ecole Nationale Supérieure de Mécanique et des Microtechniques (fluid mechanical properties of polyethylene tetraphosphate); Professor R. H. Tredgold and Dr P. Hodge, £99,043 from SERC (polymer films); Professor I. Bellamy, £53,010 from SERC (operability and procurement of emerging conventional weapon technology in NATO).



By no means the most enigmatic of Bruce Weber's, but this - of modern pentathletes Elizabeth and Lesley Deutsch - is perhaps the oddest. "Pictures of Athletes" is on show at the Olympus Gallery, London W1 until August 24.

Appointments

LIVERPOOL Lectureships: Sheila Hughes (computer science); G. M. Cawdell (obstetrics and gynaecology); A. C. Evans (law); Susan M. Smith, £2,000 from Barr and Stroud Ltd (infra-red fibres); Dr K. D. Stephen, £20,000 from Engineering Industry Training Board (improving competitiveness in engineering).

LONDON, UNIVERSITY COLLEGE Lectureships: Miss J. Gray, Dr D. Nelson and Miss G. A. Williams (all law); Dr C. Veljanovski (law and economics).

Dr R. J. A. Gazeard has been appointed director of the Centre for Middle Eastern and Islamic Studies in the University of Durham.

The Business and Technician Education Council has announced the following new appointments to its management team: Eric Meats, presently director of training (education) in the Royal Air Force, is to become chief officer (standards and review). Peter Aldridge, currently senior education officer (FE) with Buckinghamshire, Chris Chapman, a BTCE education advisory officer, and Geoffrey Chadwick, chief education officer Royal Army Educational Corps have each been appointed assistant chief officer in educational appointments.

Local History is a new magazine launched this summer to promote interest in the field which will be accessible to researchers on the one hand and to sufficiently detailed and rigorous to be of value to the academic historian. The magazine will be published six times a year and is available on subscription at £7.50 - from the publishers Susan and Robert Howard, 3 Devonshire Promenade, Nottingham NG7 2DS.

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CLASSIFIED ADVERTISEMENTS

The Times Higher Education Supplement

to place advertisements write to or telephone:

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Minimum size: 9cm x 1 col @ £106.20	Friday in the week prior to publication
Classified Linage - £2.30 per line	Classified Linage:
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Box number - £2.00	week of publication

Universities

Griffith University
SCHOOL OF SOCIAL AND INDUSTRIAL ADMINISTRATION
Computing and Information Studies
LECTURER
SOFTWARE ENGINEERING

The University is developing an innovative, interdisciplinary, problem-oriented undergraduate programme in Computing and Information Studies leading to a degree of Bachelor of Informatics. The first students will be admitted in 1985. Graduates from the programme will have studied both the technical and wider human, organisational and social aspects of computer-based information systems.

Applicants should have demonstrable experience and appropriate qualifications in an area of the social sciences relating to technology, in particular to computing and information technology. An understanding of the nature of computer-based information systems is necessary, but a detailed knowledge of computer science is not essential. The successful applicant will be expected to take on significant responsibility for planning and implementing courses within the framework of the programme, as well as undertaking teaching and research.

The appointment is a continuing one. Salary, depending upon qualifications and experience, will be within the range \$24,854 to \$32,034 per annum. Benefits include superannuation and assistance with housing. Costs of leave and reasonable removal expenses will be met for appointees from outside Brisbane.

Intending applicants should first contact the School Administrator, School of Social and Industrial Administration, Griffith University, Nathan, Qld. 4111, Australia (tel 07 275 7578), or the Secretary General, Gordon Square, London WC1H 0PF (tel 01 387 8572), regarding the form of application.

The closing date for application is 21 September 1984. (16741)

University of Edinburgh
SPEECH RECOGNITION RESEARCH

A major five year Alvey funded research and development project in speech recognition is to be initiated in Edinburgh in October 1984. In the context of an interdisciplinary effort, the department of Electrical Engineering and the School of Linguistics will be applying Artificial Intelligence and Linguistics to the design and implementation of a multi-pass system - a text input device which uses a linguistic model and depends on incremental processing of the input to develop a final text.

We invite applications for the following four posts in the project:

1. Phonologist, preferably with some familiarity with computing (ref: 8711).

2. Acoustic Phonetician, preferably with experience in the use of computers, hardware and/or software (ref: 8711).

3. English Linguist, preferably with some familiarity with some computing (ref: 8711).

Salaries for these posts to be in the range £6,850 to £11,615 per annum (ref: 8711).

For further information, contact Dr J. A. Gazeard, Centre for Speech Technology, Edinburgh University, Edinburgh, Scotland. Tel: 07 275 7578.

Applications should be sent to the School of Linguistics, Edinburgh University, Edinburgh, Scotland. Tel: 07 275 7578.

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MASSEY UNIVERSITY

Palmerston North, New Zealand

POSTDOCTORAL FELLOWSHIPS

Applications are invited for Postdoctoral Fellowships in 1985, tenable within Massey University. Awards may be made for one year and are available in the following areas:

(a) NATURAL RESOURCE ECONOMICS
Applicants are expected to have a strong background in agricultural economics or economics and should have recently completed a Ph.D. study in natural resource and/or environmental economics.

The successful candidate will be expected to contribute to research in the area of land use planning and policy and in the area of economic valuation techniques and multiplier analysis.

(b) VETERINARY PARASITOLOGY
Applicants should have interests and experience appropriate for initiating a study of the interaction of *Sarcocystis* organisms and a related apicomplex protozoan with mammalian phagocytic cells. It is envisaged that the work will involve investigating cell surface receptors, activation of phagocytosis, infected stages and effects of phagocytosis on cell respiration using kymography.

(c) ANIMAL SCIENCE
A fellowship is offered in the Department of Animal Science for an Animal Biotechnology/Physiologist to collaborate with members of the Department in studying the metabolic expression of genetic differences in productivity in sheep and cattle. Experience with hormone receptor or enzyme kinetics is desirable.

(d) PSYCHOLOGY
Applicants invited from psychologists with experience in applied research in the occupational or clinical fields and with a record of effective research or reactions to conflict. Within this broad area, the Department would be particularly interested in applicants interested in contributing to its ongoing research in one or more of the following studies:-

1. Stress, breakdown and well-being in various occupational groups.
2. Reactions to unemployment and coping with reduced income.
3. Family stress and its causes.
4. Therapeutic and coping strategies for dealing with stress and psychosomatic ailments.

(e) MOLECULAR EVOLUTION
Applicants are invited from qualified persons having experience in 2 of the following 3 areas:

a) evolutionary trees and/or evolutionary theory
b) computing and/or statistics
c) discrete mathematics

Depending on the interests of a successful applicant, they will be involved in one or more of the following areas: applications to evolutionary biology, the use of computers in the study of molecular evolution, or increasing the understanding of the mathematical basis of the methods.

The employment package will be at a rate of \$24,854 per annum (not exceeding the lowest step on the University scale for lecturers (currently \$24,854.07 per annum).

Applicants should have completed the requirements for the award of the degree or Doctor of Philosophy.

Application forms together with further details and general conditions of appointment may be obtained from the Secretary General, Association of Commonwealth Universities (Appl.), 36 Gordon Square, London WC1H 0PF, or from the Registrar, Massey University, Palmerston North, New Zealand, with whom applications close on 15 September 1984. (16782)

University of Melbourne
LECTURESHIP (LIMITED TENURE) IN MODERN CHINESE

Department of East Asian Studies

Applications are invited for a Lectureship in Modern Chinese. The main duties of the post will be to teach the Chinese language and literature to students in the Department of East Asian Studies.

The successful applicant will be expected to supervise the postgraduate students in the Department of East Asian Studies.

Salary will reflect age and experience. USS.

Closing date: 14th September.

For further information please contact: The Registrar, The University of Melbourne, Victoria 3010.

Applications in accordance with the Method of Appointment of the University of Melbourne should be sent to the Registrar, The University of Melbourne, Victoria 3010.

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Appointments

Universities
Fellowships
Research and
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Colleges of
Higher Education
Colleges with
Teacher Education
Colleges and
Institutes of Technology

Technical Colleges
Colleges of
Further Education
Colleges and
Departments of Art
Administration
Overseas
Adult Education
Librarians
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Industry and Commerce

Other classifications

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Awards
Conferences and Seminars
Courses

Personal
For Sale and Wanted
Holidays and
Accommodation

All box no. replies should be sent to THES at the above address

Griffith University
SCHOOL OF SOCIAL AND INDUSTRIAL ADMINISTRATION
Computing and Information Studies
LECTURER
SOFTWARE ENGINEERING</

Universities continued

THE UNIVERSITY OF PAPUA NEW GUINEA
Port Moresby

Applications are invited from suitably qualified persons for the following positions:

PROFESSOR OF GEOGRAPHY AND DEMOGRAPHY - P.061001/85 (Geography Department)

The Department seeks a mature, dynamic geographer with wide ranging disciplinary interests and expertise. The successful applicant will be expected to provide enthusiastic academic leadership in both teaching and research in a small group of students working in the fields of human and physical geography, and demography. He/she will be expected to direct special attention to the encouragement and advancement of national academic staff in strengthening both teaching and research efforts. This should be considered a major priority of the position.

Applicants must have a PhD or equivalent, a proven research record and considerable teaching experience. A working familiarity with Maltese and the topics, plus experience in applied studies is also desirable, since the Department encourages staff and students to work on practical problems related to the development of Papua New Guinea.

Papua New Guinea offers considerable research opportunities and funds are available from the University, National and Provincial Governments and private companies. The Department maintains a comprehensive unit and an extensive map and photo collection and has access to four-wheel-drive vehicles in many parts of the country to facilitate research.

The successful applicant will be expected to take up duties from 2nd January 1985. Additional information is available from the Chairman of the Department. Applications close on 30 September 1984.

SENIOR LECTURER/ASSOCIATE PROFESSOR IN ACCOUNTING - P.044018/84 (Economics Department)

Applicants will be primarily responsible for teaching Finance with Economic Data Processing experience and when necessary to teach Financial Accounting.

Applicants should have a minimum MA (Accounting and Finance). Preference will be given to those with a combination of a good academic qualification MBA/PhD/BA and a professional qualification - CPA, CA, etc. Teaching, research, professional and/or industrial experience, particularly in the Third World country would be an advantage.

Applicants should state clearly subjects previously taught and practical experience if any.

Applications close 14 September 1984.

LECTURERS/SENIOR LECTURER IN LAW - P.101012/85 (Law Department)

Successful applicants will be expected to take up their duties in early 1985; or July 1985.

The Faculty of Law runs courses leading to the Bachelor of Laws degree and requires persons with wide experience in the teaching of Law. Preference will be given to persons with teaching experience in more than one of the following areas: Public Law, Criminal Law and Procedure, Common Law (Torts, Contracts, Trusts and Succession), Commercial Law, Taxation, International Law and Jurisprudence.

The Faculty has an establishment of 18 academic staff and conducts programmes leading to the award of the Bachelor of Laws degree and the Diploma in Magisterial Studies and Diploma in Land Administration. The Degrees of Doctor of Philosophy (PhD) and Doctor of Laws may also be given in the Faculty of Law.

Applications close 14 September 1984.

LECTURER/SENIOR LECTURER IN EDUCATIONAL PLANNING - P.060101/85 (Education Department)

Applicants are invited for the above position, sponsored by a World Bank assisted project. The person appointed will be required to teach a programme leading to a Diploma in Educational Studies (Planning); to work closely with various Ministries of Education.

Applicants should possess a relevant higher degree involving planning work, relevant experience of educational planning, preferably in a developing country, and the ability to teach about, and guide research into, the planning problems of Papua New Guinea. Applicants should be prepared to travel extensively within Papua New Guinea as a condition of appointment, and to accept some hardship in terms of arrangements to accommodate the demands of an irregular teaching programme.

Applications close 14 September 1984.

SALARY: Lecturer K1820, gross per annum plus gratuity. Lecturer Grade II K1870, gross per annum plus gratuity. Senior Lecturer K2020, gross per annum plus gratuity. Associate Professor K2250, gross per annum plus gratuity. Professor K2500, gross per annum plus gratuity.

OTHER CONDITIONS: The successful applicants will be offered a contract for a three year appointment. The gratuity entitlement is based on 24% of salary earned and is payable in lump sum or lump sum and a flat rate of 2%. In addition to the gratuity entitlement, the main benefits include: support for approved research, rent-free accommodation; appointment and separation allowances for spouse and dependants; medical assistance towards the cost of insuring personal effects to and from PNG; 6 weeks annual recreation leave with home leave available after each 18 months of continuous service; generous education allowances for children attending school in PNG or overseas; a salary continuation scheme to cover extended illness or disability. Applicants who wish to arrange secondment from their home institutions will be welcomed. The terms and conditions are contained in the advertisement.

Applications, which will be treated as strictly confidential and should include a full curriculum vitae, recent and relevant references, and the names and addresses of three referees, should be forwarded to the Deputy Registrar, University of Papua New Guinea, P.O. Box 200, University, Papua New Guinea. Candidates in the UK should send an additional copy to the Deputy Registrar, University of Papua New Guinea, P.O. Box 200, University, Papua New Guinea. Applications should be received by 14 September 1984.

For one year commencing 1st January 1985, the salary scale will be in the range of K1820 to K2500 (under review) plus 24% gratuity.

Further particulars and application forms may be obtained from the Deputy Registrar, University of Papua New Guinea, P.O. Box 200, University, Papua New Guinea. Applications should be received by 14 September 1984.

**PAPUA NEW GUINEA
Institute of Applied Social and Economic Research**

Applications are invited for Research/Senior Research Fellowships in the following areas:

NATURAL RESOURCES/AGRICULTURE

The Institute will be expected to undertake applied research into the social and economic aspects of natural resources management and policy in Papua New Guinea. Experience in social and environmental impact studies will be an asset.

POLITICAL SCIENCE

The Institute will be expected to conduct research within the broad fields of Political Science in Papua New Guinea, focusing on the operation and administration of provincial government, national-provincial relations, and local-level government.

SOCIOLOGY

The Institute will be expected to undertake research into urban and rural development. We are seeking a broadly trained person with academic skills and experience in conducting applied research in developing countries. Familiarity with verbal computer packages (SPSS, SAS, etc.) will be an advantage.

Applicants must have a PhD degree (or equivalent experience), a good research and publications record, and some experience in conducting applied research change. The successful applicant should be willing to work with staff in the Institute to assist in the Institute's training programme, and to provide technical assistance to local government departments. The level of appointment will be determined by qualifications and experience.

Initial appointment between 12 and 24 months with possibility of extension. Annual salary K1810 to K1765 (Research Fellow) or K1810 to K1800 (Senior Research Fellow) (UK £10,000 to £10,500; £11,000 to £11,500) with 24% gratuity. Salary scale includes pension, medical, and housing provisions.

Subject to availability, and names of three referees to Director, IASER, P.O. Box 8884, Port Moresby, Papua New Guinea. Telephone: 233250. Applications close 15 October 1984.

At current rates, salaries for research fellows are 24% above the salary scale for academic staff. The successful applicant should be willing to work with staff in the Institute to assist in the Institute's training programme, and to provide technical assistance to local government departments. The level of appointment will be determined by qualifications and experience.

Further particulars and application forms may be obtained from the Deputy Registrar, University of Papua New Guinea, P.O. Box 200, University, Papua New Guinea. Applications should be received by 14 September 1984.

PLEASE MENTION THE T.H.E.S. WHEN REPLYING TO ADVERTISEMENTS.

**Silsoe College
Faculty of the Cranfield
Institute of Technology
LECTURER IN
AGRICULTURAL
ENGINEERING**

Applications are invited for this three-year contract appointment in the field of agricultural engineering in the Department of Agricultural Engineering at Silsoe College. The contract is to start as soon as possible (preferably in January 1985).

The person appointed will teach B.Sc. and postgraduate students and will be responsible for the selection of staff and the supervision of research projects which could include Cultivations, Drainage, Soil Management, Soil Mechanics, or Soil and Water Conservation. He/she will also be expected to contribute to the research programme in Applied Soil Physics, probably using the new 50m soil pit which will shortly be completed.

Additional staff are encouraged to take part in short courses teaching and in consultancy.

Candidates should have a good honours degree in Agricultural Engineering, or an equivalent, and a minimum of two years' experience in a relevant branch of agricultural engineering. Research experience and teaching experience would be desirable advantages.

Salary will be in the scale for University Lecturers for 1984-85, £7,180 - £14,125 (under review) w.e.f. April 1984.

Application forms and particulars may be obtained from the Registrar, Cranfield Institute of Technology, Silsoe, Bedfordshire, MK43 0AF. (111177)

Applicants should have a good honours degree in Agricultural Engineering, or an equivalent, and a minimum of two years' experience in a relevant branch of agricultural engineering. Research experience and teaching experience would be desirable advantages.

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**The University of
Lancaster
Department of Linguistics &
Modern English Language
LECTURER**

Applications are invited for a Lectureship in the Department of Linguistics and Modern English Language, starting 1 January 1985.

Applicants should have a PhD or equivalent, and a minimum of two years' experience in a relevant branch of linguistics. Research experience and teaching experience would be desirable advantages.

Salary will be in the scale for University Lecturers for 1984-85, £7,180 - £14,125 (under review) w.e.f. April 1984.

Application forms and particulars may be obtained from the Registrar, Lancaster University, Bailrigg, Lancaster LA1 4YW. (111177)

Applicants should have a good honours degree in Agricultural Engineering, or an equivalent, and a minimum of two years' experience in a relevant branch of agricultural engineering. Research experience and teaching experience would be desirable advantages.

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**The Papua New Guinea
University of
Technology
Matheson Library
CHIEF CATALOGUER**

Applications are invited for a Lectureship in the Department of Linguistics and Modern English Language, starting 1 January 1985.

Applicants should have a PhD or equivalent, and a minimum of two years' experience in a relevant branch of linguistics. Research experience and teaching experience would be desirable advantages.

Salary will be in the scale for University Lecturers for 1984-85, £7,180 - £14,125 (under review) w.e.f. April 1984.

Application forms and particulars may be obtained from the Registrar, Lancaster University, Bailrigg, Lancaster LA1 4YW. (111177)

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Polytechnics continued

Bristol Polytechnic Management Department TEMPORARY 1 YEAR POST OR 2 ASSOCIATE (0.5) LECTURER II/ SENIOR LECTURER Ref No L/83

The person(s) appointed will be involved in the teaching and supervision of students in the Department of Management. In particular, the person(s) will be responsible for the Diploma in Management Studies, the Diploma in Personnel Management and the postgraduate Diploma in Management. Applicants should be able to demonstrate successful teaching and supervisory experience in a management education. Postgraduate or post-experience qualification would be an advantage.

Duties to commence as soon as possible and terminate on 31st August 1985.

Associate Lecturers work on a full-time basis and are paid at 50% of the full-time scale.

Salary Scale: L1 £7215-£10685 (1984-85) L2 £10685-£12555 (1985-86) L3 £12555-£14425 (1986-87) L4 £14425-£16295 (1987-88) L5 £16295-£18165 (1988-89) L6 £18165-£20035 (1989-90) L7 £20035-£21905 (1990-91) L8 £21905-£23775 (1991-92) L9 £23775-£25645 (1992-93) L10 £25645-£27515 (1993-94) L11 £27515-£29385 (1994-95) L12 £29385-£31255 (1995-96) L13 £31255-£33125 (1996-97) L14 £33125-£35000 (1997-98) L15 £35000-£36875 (1998-99) L16 £36875-£38750 (1999-00) L17 £38750-£40625 (2000-01) L18 £40625-£42500 (2001-02) L19 £42500-£44375 (2002-03) L20 £44375-£46250 (2003-04) L21 £46250-£48125 (2004-05) L22 £48125-£50000 (2005-06) L23 £50000-£51875 (2006-07) L24 £51875-£53750 (2007-08) L25 £53750-£55625 (2008-09) L26 £55625-£57500 (2009-10) L27 £57500-£59375 (2010-11) L28 £59375-£61250 (2011-12) L29 £61250-£63125 (2012-13) L30 £63125-£65000 (2013-14) L31 £65000-£66875 (2014-15) L32 £66875-£68750 (2015-16) L33 £68750-£70625 (2016-17) L34 £70625-£72500 (2017-18) L35 £72500-£74375 (2018-19) L36 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